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POPULAR Computing WEEKLY

17–30 April 1987 Double issue

Vol 6 No 16

NEWS DESK

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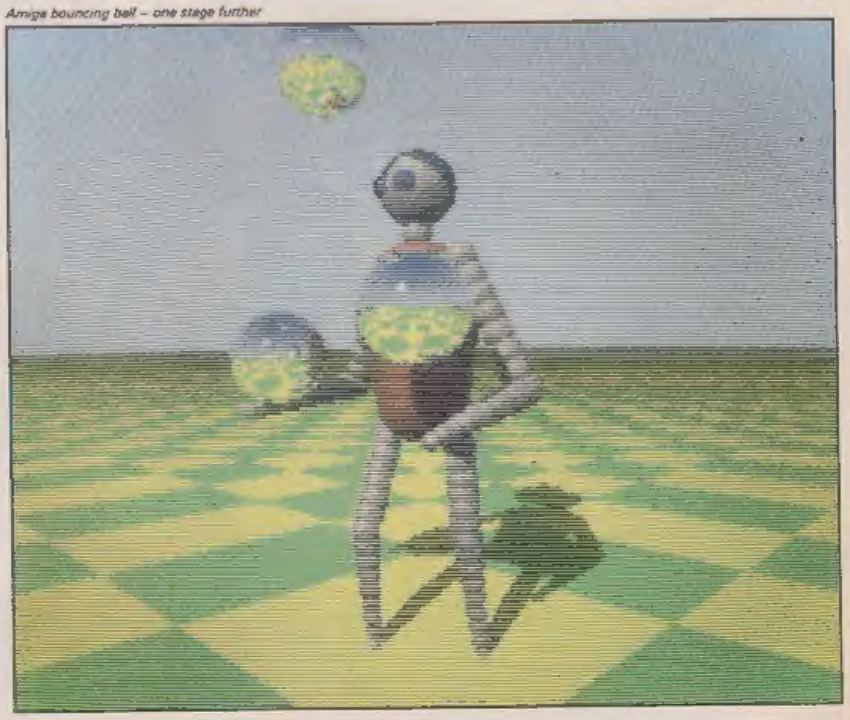
Sir Clive's Z88 portable delayed

Commodore UK's new team speaks out

IBM Personal System/2 Model 30

Amiga bouncing ball – one stage further



Desk top publishing on the PCW

SPECIAL supplement

Commodore 64 and Amiga

10..9..8..7..SUCCESS..6
5..4..3..2...FAILURE..
..THE DIFFERENCE IS..
..TIMING..

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ABC

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Andersen's tales – latest details on Kaday and PC1

KRISTIAN Andersen, Commodore UK marketing chief, has dismissed as fairytales any speculation that the recent departure of MD Chris Kaday was demanded by European headquarters.

When *Popular Computing Weekly* asked him to clarify the circumstances surrounding Kaday's sudden resignation, Andersen said: "It was not dramatic, it was just one of those things. Chris just thought he'd prefer to go for other opportunities."

There has been speculation in the computer trade press that Kaday was asked to leave following concern expressed by Commodore president and chief executive Tom Rattigan about Commodore's UK prospects.

He was recently reported as saying that "the UK market's been a real problem for us over the past year". But Andersen denied that Kaday was part of any 'problem'.

"I don't think he (Rattigan) was addressing the performance of the UK subsidiary. On a time schedule, the UK and US markets were caught without new products, which wasn't the case in the rest of Europe."

Referring to the A500 and A2000 Amiga, he added: "But we've got the new products out now."

Andersen went on to dispel some of the mystery surrounding the PC1, the machine suddenly unveiled at the Hannover Fair last month, about which no-one, Kaday included, seemed to know anything.

"The PC1 is a downgrade of our PC line. There seemed to be interest in a product like that, and so we built one and showed it in Hannover."

Andersen took the same dim view of the Commodore machine as Atari chief Jack Tramiel took of the Atari PC when that was launched in Hannover.

"I'm not very convinced that people will buy it – for one thing, MSDOS will bore the home computer market stupid. It's only a single drive machine, and you can't build it any further up," he said.

Andersen confirmed that when PC1 is launched, probably in "late summer", it will be available in the UK.

Z88 behind schedule

THE Z88, the portable computer announced by Sir Clive Sinclair at the *Which Computer?* show last February, has been delayed and is not due to go into production much before the end of the month.

Sir Clive said last week that the machine was in pre-production, and production was due to start in over a week.

That would make it the third week of April before production was due to start, with delivery not due to take place before the end of the month.

Of the peripherals to be sold with the Z88, the add-on modem is still awaiting BABT approval, and won't be ready for "six to eight weeks".

The machine has been the subject of controversy since it was advertised on a mail-order basis with no definite delivery date, although Sir Clive originally said that the first machines would be delivered to customers in April.

Digital Research starts PS/2 software deluge

DIGITAL Research has announced that it is producing the complete range of Gem presentation graphics applications for IBM's new Personal System/2.

Gem Draw Plus, Gem Graph, Gem WordChart, Gem Collection, Gem Presentation Team and *Gem Programmer's Toolkit* will be available on 3½ inch disc from June, at the same prices as the existing 5¼ inch format.

"These new computers with enhanced, high resolution graphics and a mouse option are ideally suited to operate with the Gem presentation graphics product line," said DR president and chief executive officer Dick Williams.

Gem applications will continue to be sold in the existing 5¼ inch format. Further information is available from Digital Research (UK), Oxford House, Oxford Street, Newbury, Berkshire RG13 1JD. (0635) 35304.

Locoscript 2 delayed

LOCOMOTIVE Software has put back the release of *Locoscript 2*. It is now due for imminent release.

The enhanced version of Amstrad's bundled word processor was originally scheduled for release in March.

Howard Fisher of Locomotive said that the company was in the process of completing the manual, and digging out the few remaining bugs.

Asked why the long-awaited upgrade had been delayed, he said it wasn't down to any specific problem.

"I think it's just the general optimism within the software industry about release dates," he said.

Online jobcentre for programmers

BUDDING games programmers could do worse than put demos up on Commodore database Compunet, according to Compunet's Jane Firbank.

"Some kids started putting up demos, graphics and so on. The software houses started to pick up on this, because they're desperately short of programmers," she said.

Houses such as The Edge, Mirrorsoft, Elite and Melbourne House are all understood to have success with coders recruited as a result of seeing their work on Compunet.

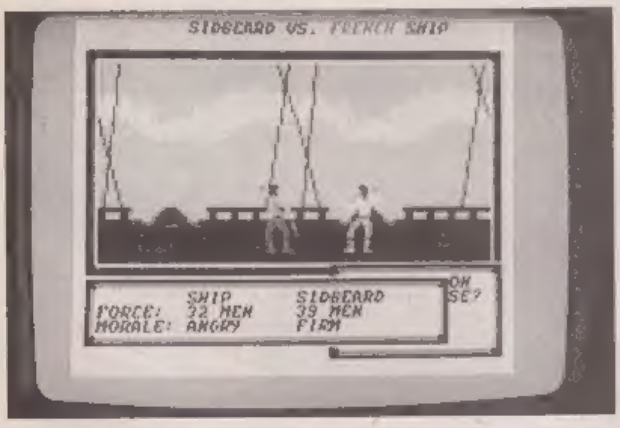
"Not only do software houses see your work, but because of all the communication going on on Compunet you're not going to get anybody signing somebody up on a rip-off deal," Firbank went on.

It's not only budding amateurs who can benefit from the service. Established coders such as Rob Hubbard, who wrote the music for *Knucklebusters* and *The Last V8* among many others, are known to use Compunet to get work and as a PR medium generally.

Pirates ahoy

HERE are two screen shots from the forthcoming Microprose offering, *Pirates* (see *Popular Computing Weekly*, 3–9 April).

No further details are available at the moment, but a Microprose spokeswoman said last week that it would be released some time after July 1st, the exact date still to be fixed.



Software Hotlines

IT'S usually rule number 27 of computer journalism to avoid tape magazines, so when *Jumpdisc* – a mag on a disc for the Amiga – was thrust under the nose, the serene consciousness momentarily quailed.

However, it turned out to be very good indeed, chock full of articles and Amiga Basic programs, best of which was a spoof spreadsheet thing called Microsutra (see above).

Imported from the States by **George Thompson Services,** there'll be one out per month, and for £8.50 (incl p&p) it's a bargain. Also from the same source, **GTS** will be putting out Amiga games for under a tenner later in the year. Interested parties write to Old Reigate Road, Betchworth, Surrey RH3 7DR, or ring 073 784 4675.

I see the crime figures are up again and no, we are not referring to the Mafia's profits, but the number of murder mysteries coming up to a computer near you soon.

There's *The Detective*, from the **Argus Software Press** stable, that puts you on the MacFungus case – bopping round the manor house (looking like an extra from an **Ultimate** 64 game) trying to find clues as to whodunnit, which itself gets easier as the number of suspects diminishes with a frightening rapidity with stiffs mounting up ten to the dozen. Neighbourhood Watch was never like this.

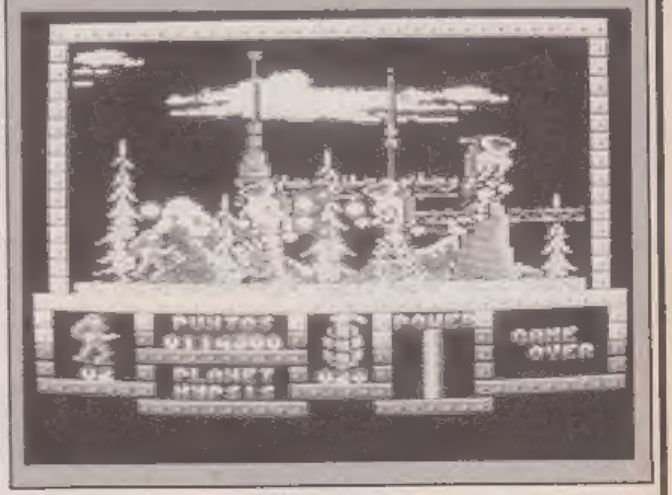
There's *Killed Until Dead* from **US Gold** about soon, of course – here you have to try and prevent the dirty deed before it happens, and *Murder on the Atlantic* from **Infogrammes** – and a Fergus McNeil send up of the *Great American Detective* called *The Big Sleeze* (out May, £9.95) – that's from **Piranha.** The software house that not only takes the shirt off your back, but then shreds you into little pieces.

Coo – **Psygnosis** is at it again, with two new games on the horizon for ST and Amiga. *Terrorpods* looks like an arcade strategy job, but out before that (at the Atari show) is *Barbarian*, an arcade adventure type thing. Hope to review that in the next issue.

Good grief, did you know that *Rock 'n Wrestle* has sold over 100,000 copies in the States, under the name *Bob 'n' Wrestle*. I guess it's only fair if you think about it – they send us junk food, and we send them . . . well . . . just junk I suppose.

Finally, seeing as there's a picture of one of **Imagine's** up and coming releases below, *Game Over*, better say something about it. Errr . . . don't the graphics look pretty?

John Cook



Microsoft OS/2 details

MICROSOFT has announced its new hardware and software developments to tie in with the launch of IBM Personal System/2.

Chief among these is Microsoft Operating System/2 (MS OS/2), its proprietary version of the new operating system, developed in conjunction with IBM for the new IBM Personal System/2 PCs. This is a multitasking, single-user OS for 80286 and 80386 based PCs.

"Microsoft Operating System/2 provides the foundation for the next phase of exciting growth in the personal computer industry," said Microsoft chairman Bill Gates.

"MS OS/2 will be the platform upon which the next 1000 exciting personal computer applications software products will be built."

GATES: growth

Microsoft has also announced MS-DOS version 3.3 for IBM PCs and compatibles, the *Windows* presentation manager version 2.0, and a new mouse for PS/2 machines.

Microsoft anticipates that MS OS/2 will be generally available in 1988.

Free legal advice for Amstrad users

AMSTRAD Users' club members are now able to obtain free legal advice thanks to a deal with IRPC Legal Services.

On payment of the club membership fee, each member will receive a card with relevant telephone and membership numbers.

He or she will then be entitled to round-the-clock legal advice from IRPC's advisers on subjects from motoring offences to matrimonial problems and personal injury.

Why did IRPC decide to offer this service to Amstrad users' cloubs in particular?

"We market this product to groups en masse," said a spokeswoman for IRPC.

"It's quite an attractive benefit that could be offered with membership."

Details should be available from local Amstrad users' clubs, or direct from John Mullin, IRPC Legal & Personal Insurance Services Ltd, Stockwell House, New Buildings, Hinckley, Leicestershire LE10 1HW, (0455) 30741.

Starglider talks

RAINBIRD Software's publisher Paul Hibbard confirmed last week that the company is planning to sell the rights to *Starglider*, the acclaimed shoot 'em up, to an arcade company.

"Discussions are taking place with a number of people," he said, although he was unable to say who exactly was involved. More details are expected to emerge shortly.

Amiga aid

AN ST emulator with a difference has been announced by Ahmed Innovations and Research.

STimulator is an emulator for the Amiga, which runs as an Amiga task. Multiple copies can be run to emulate an ST in each window, and AIR director Hassan Ahmed claims, Gem programs for the ST make full use of the blitter chips when run on the Amiga.

But the interesting part is that AIR are asking for an extra cheque for £5 to be sent with each order. The cheque must be payable to one of the following charities: Imperial Cancer Research; Terence Higgins Trust; British Diabetic Association; Mencap; Childline; Oxfam Ethiopian Fund.

AIR says that "anyone sending an order without a cheque to a charity will be refused".

STimulator is available price £15 from AIR Ltd, 145 Malden Way, New Malden, Surrey KT3 5QX, 01-949 4442.

Beginners' WP

RAMASOFT has just released a wordprocessing package for the Amstrad CPC.

Junior Wordpro is aimed at children and "non computerate" adults, and is designed to introduce them to the basic concepts of wordprocessing.

It is designed with simplicity in mind, says Ramasoft, and so features large text modes, double line spacing, constant unscreen prompts and a minimum of wordprocessing functions.

Brian Soul of Ramasoft claims, "It has been tested by teachers and is recommended not only for educational purposes but also for non-technically minded adults who want to use their computers for producing quick notes and letters."

Junior Wordpro costs £8.50 on cassette, and £11.50 on disc, from Ramasoft, 6 Stile Plantation, Royston, Herts SG8 9HP, (0763) 43715.

DIARY DATES

APRIL

24–26 April
The Atari Computer Show
Novotel, London W6
Details: First chance for Atari to show off exciting new strategy
Price: £3 adult, £2 children, £1 discount for advance booking
Organiser: Database Exhibitions, 061-456 8835

MAY

2–3 May
First Ideal Microcomputer Show
Kensington Exhibition Centre
Details: Software, hardware, peripherals for consumer users
Price: £3 on door, £2 in advance
Organiser: RAMCO International Exhibitions, 01-906 3363

8–10 May
The Electron & BBC Micro User Show
New Horticultural Hall, London
Details: Software, hardware and peripherals for Acorn's micros
Price: £3 adult, £2 children, £1 discount for advance booking
Organiser: Database Exhibitions, 061-456 8835

JUNE

12–14 June
Commodore Show
Novotel, Hammersmith
Details: First public showing of A500 and A2000 Amigas
Price: £3 adult, £2 children
Organiser: Database Exhibitions, 061-456 2991

JULY

10–12 July
Amstrad Computer Show
Alexandra Palace Pavilion, London
Details: Displays and demonstrations of all latest hardware, software and peripherals for Amstrad computers
Price: £3 adult, £2 children, £1 discount for advance booking
Organiser: Database Exhibitions, 061-456 8835

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending. *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organiser.

BE FAST...BE ALERT...OR BE DEAD!

R.I.S.K.

I didn't expect to get a 'R.I.S.K.' order ... none of us ever does. I mean, Galactic Command doesn't call for a Rapid Intercept, Seek and Kill operative unless all else has failed ... but why do I get this feeling I'm gonna be on my own this time?

THE EDGE, 36/38 Southampton Street, London WC2E 7HE

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The Greenock Effect

John Brissenden assesses the impact of IBM Personal System/2

WHAT'S all the fuss about? One Thursday afternoon the best part of a hundred reporters come blinking out of a press conference in the wilds of Scotland and file stories which make Greenock sound like another Lourdes.

Industry 'pundits' have hailed the launch of the IBM Personal System/2 as a watershed in personal computing. Yet ironically it is of more immediate importance to the corporate user.

So why is *Popular Computing Weekly* jumping on the bandwagon? Why does IBM's new strategy for the 1990s, providing links between PCs, minicomputers and mainframes, bear the slightest relevance to an ST or Amiga user, much less a Spectrum owner?

The basic reason is that IBM, fish in a pond wise, is like a killer whale in a bath. Commentators have pointed to the fact that when the first range of IBM PCs were launched five years ago, other manufacturers viewed the run-of-the-mill technology with ridicule.

But that changed when these "Incredibly Boring Machines" became the Ford Cortina of personal computing. They might not be original, and were certainly overpriced, but they were IBMs, they did the job, and they sold in the millions.

So while other manufacturers of software and hardware, corporate users and *Popular* readers might shrug off Personal System/2 as not affecting them, the point is that when fish the size of IBM decide to make a move, the waves affect us all.

This effect appears in several ways. Firstly, the technological innovations of PS/2 will dictate a new industry standard. In the old days, before April 2, that just meant 'compatibility'.

But now, there's a new built-in graphics standard to adhere to. There are machines constructed using Surface Mounted Technology. That means more smaller, powerful, faster, cheaper, safer and more reliable (according to IBM) machines. And there's the new architecture, MicroChannel.

This has the effect of making the PC more like a minicomputer, moving more information more quickly around the inside of the machine.

The result of that is to make it more difficult, but not impossible, for other manufacturers to reproduce IBM's technology. At the launch, IBM UK chief executive Tony Cleaver told reporters:

"Innovation of the sort you see in these products is expensive and we believe we have a right to ensure that our ideas are not handed on a plate to our competitors."

What that means is that you won't see a Compstrad Personal Clone/2 coming out, at least not for a year or two. It also means, however, that PS/2 technology, and the subsequent changes, eg, the move to $3\frac{1}{2}$ inch discs, will definitely spread to other areas of the industry. In the ongoing move to cheaper and more sophisticated machines, PS/2 represents a quantum jump.

Akhter is one company which has beaten IBM to the punch on this point. Its PC, launched last month, was just ahead of the field in using $3\frac{1}{2}$ inch discs. How does its OEM divisional manager Andrew Seal view the advent of PS/2?

"We're very pleased. We believe the $3\frac{1}{2}$ inch format is the right technology for the future, and we're pleased that IBM thinks so too, because after all, it is the world leader.

"It won't impact on our business, in fact it will do the opposite, by breathing life into the PC field, and encourage stability in the business.

As some industry figures have pointed out, PS/2 is intended as part of a system, and is therefore quite clearly aimed at corporate users' DP departments – not individual users within or without corporate sites.

IBM is thus leaving clone manufacturers to fight it out among themselves. The launch of PS/2 can be seen as an exponential growth in a market that is already growing and fragmenting at an incredible rate.

Peter Bayley of Compaq, Bob Garrett of Olivetti and Alan Sugar of Amstrad are all on record as saying that PS/2 will not directly affect their sales or strategy for some considerable time to come. Nor should it.

"The market that has been set up by IBM in terms of AT/XT compatible machines is now the mass market," said Geoff Pick, senior sales executive of AMT.

"What IBM does won't affect that mass market."

In turn, the Amstrad PC, for one, has uncovered a new market of home and small business users whose needs are quite different from the OA manager who needs fifty machines, with multitasking, LAN (local area network) capability or whatever.

So while that area of the market may well be influenced by aspects of PS/2 technology and software, on another level the difference between the various sectors of the micro market will become more marked.

The fragmentation that has been going on for the best part of a decade will be accelerated by the IBM announcement. But at the moment it is difficult to tell how this will manifest itself in home and small business machines.

But Greenock will make another positive contribution. What has been remarked upon little is the competitive pricing of the new machines. Model 30 starts from £1,300, and the 286 machines start from under £3,000, including a 20MB hard disc.

Definitely not Sugar melting prices – but for the corporate market at which they are aimed, these represent an attempt by IBM to compete on all levels.

Indeed the major complaint at the moment seems to be the "long lead times" – industry-speak for intolerable delays between announcement and availability. This applies to the machines themselves and, just as importantly, Operating System/2, which won't be with dealers until 1988.

For that reason above all, it will be some time before the full impact of PS/2 is clear. But when it does become clear, PS/2 will have an effect far beyond its initial market.

Model 30-021, keyboard and 8512 monitor

NOW GAMES 4

AS SEEN ON TV

VIRGIN GAMES proudly presents NOW GAMES 4! No dedicated games player can afford to miss this bumper pack. There are 5 full priced hits on one cassette, each chart-topping game works out at a budget game price.

Leading the way is the incredible "DAN DARE – PILOT OF THE FUTURE" from Virgin. There's the hit game of everyone's favourite film "BACK TO THE FUTURE" and a chance to crack systems with "HACKER", both from Activision. "MISSION OMEGA" from Mind Games requires strategic thinking against the clock and Jonah Barrington says "JONAH BARRINGTON'S SQUASH" is so realistic it may even help improve your game. This is a first for Amstrad owners as this has never been released before!

AVAILABLE FROM COMMODORE 64/128, SPECTRUM 48/128 AND AMSTRAD CPC computers, on cassette for £9.95.

Now Games 4 is available from all good software retailers or directly from Virgin Games with this coupon.

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NOW GAMES Spectrum 48/128 and Commodore 64/128 • Featuring: **Lords of Midnight** (Beyond), **Strangeloop** and **Falcon Patrol II** (Virgin Games), **Pyjamarama** (Mikro-Gen), **Arabian Nights** (Interceptor), **Brian Bloodaxe** (The Edge).

NOW GAMES 2 Spectrum 48/128 and Commodore 64/128 • Featuring: **Airwolf** (Elite), **Chuckie Egg 2** (A'n'F), **Tir Na Nog** (Gargoyle), **Cauldron** (Palace Software), **World Cup** (Artic).

NOW GAMES 3 Spectrum 48/128, Commodore 64/128 and Amstrad CPC • Featuring: **Nick Faldo Plays the Open** (Mind Games), **Sorcery** (Virgin Games), **Codename Mat II** and **View to a Kill** (Domark), **Everyone's a Wally** (Mikro-Gen).

Please circle the software you require. Send this coupon to VIRGIN GAMES LTD, 2/4 VERNON YARD, PORTOBELLO [illegible] LONDON W11 2DX. Please make cheques and postal orders payable to VIRGIN GAMES LTD. Please do not post coins or money.

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NOW GAMES 3	£7.95	£7.95	£7.95
SET WHICH INCLUDES NOW GAMES, NOW GAMES 2 and NOW GAMES 3	£16.00	£16.00	

Letters

MSX goes monthly

I wondered if you might mention our MSX user group, as judging by your letters page a good many MSX users read your publication.

We are a non-profit making group, with members in many countries and all continents.

We publish a monthly newsletter, usually five or six pages of news, help pages, new MSX software releases, penpals (many abroad) and a few reviews.

Our current newsletter lists no less than 47 new software titles in the last month, not bad for a dead format.

Anyone wishing to contact us should write to David Webb at 11 Ayscough Avenue, Spalding, Lincs.

Thank you for remembering us MSX users.

Keith Neal
MSX Link publicity officer

Flight that's fancy

I especially enjoy flight simulators, and I found the review of Sub-Logic's *Flight Simulator* (March 6) very interesting.

My question is, if I buy an Amstrad PC1512 for my business, will I be able to run flight simulators as good as Sub-Logic's on it?

At present, we have a 48K Spectrum, which we use mainly for games. The best flight simulation we have is undoubtedly *Tomahawk* by D K Marshall of Digital Integration. Do you know if the company has any plans for another one like this?

John Martin
Nicosia, Cyprus

Sub-Logic's *Flight Simulator* is available for PC compatibles, but published by Microsoft. It has long been regarded as a standard for everyone else to follow.

Digital Integration has a new flight simulation planned for release this autumn. The program wil be based on flying a General Dynamics' F16 Falcon Fighter, and is being developed for both the Spectrum and PC compatibles (also ST, C64 and CPCs).

Looking for a deal

Back in *Popular*, November 13, your News Desk reported Amstrad CF2 disc prices had been reduced to £2.99.

Since then I have been to all the computer shops and high street chains in Leeds who stock and sell the discs only to be met with blank stares and "Our discs are £4.99".

I have even launched forth from Lave in my trusty Cobra to scout the galaxies but still to no avail.

I now turn to you, can you help me find some of these mythical beasties?

S Hazlegrave
Leeds

Off the top of our heads, Pinner Wordpro of Dawlish Drive, Pinner, Middx. and Computers by Post (credit card hotline no: 01-760 0014) are both selling ten-packs of CF2 discs at £2.99. Try shopping around a bit more!

Trouble and time

I ordered the *Wordfinder Microdrive Spectrum 128* from WD Software, Jersey, on November 8 1986. Since I had not received my order by the first week in December, I phoned WD to find out the cause of the delay. The gentleman at WD told me there had been a shortage of microdrives, but this had since eased and I would be receiving my order within the next few days.

It was now December 11 and still no sign of the order, so I wrote to my bank and requested them to stop payment of my cheque. I again phoned WD to inform them of my actions, and their representative (the same voice as previously) expressed deep regret at my action in cancelling the cheque and suggested I may have acted a little hastily. He gave the same excuse as before (microdrive shortage) and again promised delivery within the next few days.

It had now become a point of honour to obtain this utility, therefore I told WD I would send another cheque and covering letter, both dated December 11 1986. My name was again taken and I was informed by the 'voice' that he would look out for my order.

Santa came and went but still no sign of my microdrive. I phoned on January 26 1987, was given the microdrive shortage excuse, and the empty promise of quick delivery. I phoned again in mid February – the same excuse and promise. At the date of this letter, I have still not received my order.

If I total the cost of the bank charge and the phone calls from Scotland to the Channel Islands, I find that I have paid for a program I haven't got, so I would suggest to your readers that if my treatment by WD is used as a criterion, I should think twice before ordering anything from them.

P Groome
Lanarkshire

Ataris in Norway

I'm sorry to inform those of you that replied to my letter in *Popular*, March 6, that our newsletter is written in Norwegian, and will therefore be of no use unless you are Scandinavian. Due to the enormous amount of replies we are unable to answer them all individually.

Kristian Rosenvold
Atari ST user group of Norway

Puzzle

Puzzle No 254

Professor Otto Hex was showing his young grandson the following alphamatic:

```
  O T T O  x
         I
-----------
  S T O P
```

Each of the letters, he explained, represented a digit. By substituting digits for letters, the same digit for the same letter wherever it occurred, the original multiplication could be found.

Can you find the correct substitution?

Solution to Puzzle No 249

The most frequently occurring score is 38, which is likely to occur, on average, 1842 times out of 46656. This represents a probability of 0·03948 (approx). In practical terms a score of 38 would occur once every 25 throws.

The program tackles the problem by computing each of the 46656 possible throws, and adding up the score so obtained. A running total is kept of the frequency of each score and this is examined at the end of the program to determine the leading total.

In this program, the array *D(6)* is used to hold the scores for each of the six faces of the dice. This is read from the data lines at the end of the listing. The second array *T(78)* is used to keep the running total of the scores obtained. The actual scores will be in the range 12 to 78 (ie, six 2s to six 13s). As each value is scored that unit of the array is incremented by one at line 230 of the program.

Once all combinations of throw are tested, the *T( )* array is scanned finally to find the highest value contained. This represents the number of times that particular score has occurred, and the score itself is given by the value of the subscript (N).

Winner of Puzzle 249

This week's winner is Mike Owen, of Henley-on-Thames, Oxon, who will receive £10.

Rules

The closing date for Puzzle 254 is May 7. Answers should include a program listing if possible.

```
100 CLS
110 DIM D(6),T(78)
120 RESTORE
130 FOR N=1 TO 6
140 READ D(N)
150 NEXT
160 FOR A=1 TO 6
170 FOR B=1 TO 6
180 FOR C=1 TO 6
190 FOR D=1 TO 6
200 FOR E=1 TO 6
210 FOR F=1 TO 6
220 T=D(A)+D(B)+D(C)+D(D)+D(E)+D(F)
230 T(T)=T(T)+1
240 NEXT:NEXT:NEXT:NEXT:NEXT:NEXT
250 SCORE=0:FREQ=0
260 FOR N=2 TO 78
270 IF T(N)>FREQ THEN FREQ=T(N):SCORE=N
280 NEXT
290 PRINT"Most frequent score is";SCORE
300 PRINT"Occurring ";FREQ;" times"
310 END
320 DATA 2,3,5,7,11,13
```

In for the Swoop

With the Micro Power game *Swoop*, I have noticed that when the joystick option is chosen, the joystick works back to front. This is easily remedied by using the joystick upside-down.

The problem comes because I have just bought a joystick where it is not easy to use backwards. I was originally using a very old model, and I am wondering if the fault lies with my joystick, my BBC B, or the program itself.

Paul Howlett
Runcorn

No *Swoop* experts here. Can anyone explain?

Once upon a time there was a company called Commodore UK

The ST magazine that STIX

I thought readers of your magazine might be interested to know of the existence of the Sixteen-Thirty two Information Exchange (STIX), a quarterly non-profit making magazine for the ST series.

As well as the usual reviews of professional and public domain software, articles and fiction, it has many pages of readers' hints, tips and general comments on all aspects of ST computing.

Enthusiasts can send in up to one page of A4 information, and we will print it as it stands (as long as it isn't offensive!) free of charge.

STIX costs £1 per issue from STIX magazine, c/o 72 Main Street, Osgathorpe, Leics LE12 9TA.

Jason Kingsley
Oxford

CPC 6128 SOS

I use *Protext/Promerge* on a CPC 6128, printing with a DMP 2000. This is a reasonably low cost set-up that performs brilliantly, and the results look better to me than with a PCW – except that the NLQ character set of the DMP 2000 is rather finky [sic]. The 'i' and the 'd', for instance, seem to come from some other, smaller, size of print altogether. So does the 't'. Neat enough, but not the best. There seems no technical reason, only poor graphic design.

Is there an alternative NLQ set available? The font packages I have seen advertised seem to assume that what you want is some strange or grotesque results – but all I want is a better set of NLQ characters. Best would be a replacement Rom for the printer (obviously, really best would be a laser printer or some hot-shot 24 pin job but I'm trying to be realistic here).

Can anybody out there help?

Peter Ceresole
London SW14

Myth breaking by Atari

I would like to reply to the letter by Mark Annetts in *Popular*, March 20.

Firstly, let me correct a few myths. Atari UK does intend to release a 65XE machine, but without a keyboard, which will make it a games machine at £89.99. For an additional £40 you will be able to buy a keyboard, tape recorder and light gun. This turns the machine into a 65XE computer.

This market ploy makes a lot of sense. The 8-bit range of Atari micros are all compatible, which creates a readily available user base of 350,000. A fair amount of software is presently available for the 8-bit range and the computers already have a cartridge port.

Considering the Atari 800 was introduced nine years ago, it was way ahead of its time. It is still the most sophisticated 8-bit micro on the market and has never reached a quarter of its capabilities.

Its graphics and sound are superior to the Commodore 64 because of its three custom chips, Antic, GTIA and Pokey, which are 8-bit versions of the Commodore Amiga's Denise, Portia and Agnus (both sets designed by the same person). This makes the Atari 8-bit range superior to the 7800 Pro System and should cut Atari's production costs.

The Atari 800XL (8-bit) range can display up to 256 colours simultaneously on screen using machine code, the custom chips speed up the 6502 processor's operations and greatly enhance the graphic capabilities.

My final word is well done, Atari. You should do well if software is made available and prices kept low.

W Murray
Bristol

Avoiding the menace

In Game Two of the Readers vs *Colossus* chess tournament, the Readers, playing white, chose to recapture with the knight at move 15, not the queen, maintaining pressure on d6 and avoiding black's threats: d7–b5.

Colossus has replied by moving its rook to c6, preparing to double on the c-file.

Make the vote swing

What do you think the Readers team should do now? Send your suggested Readers move to *either* Inter-Mediates (*Popular* Chess), Freepost, Sawbridgeworth, Herts CM21 9YA (you do not need to use a stamp with this address), *or* *Popular* Chess, Unit 2, The Maltings, Sawbridgeworth, Herts CM21 0PG (with a stamp).

Please note that if you use Freepost, your entries must be posted promptly – Freepost is slower than paid-for mail. All entries must reach either address by Monday, April 27. As this is a double issue, you have a longer time than normal to send your votes in.

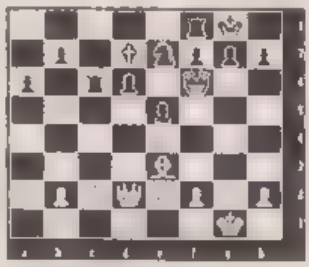
The move which gets the most votes will be entered into the game. Results and *Colossus*'s response will be published in the May 8 issue.

Prizes

A British Museum reproduction Arran chess set will go to the person suggesting the most accepted moves at the end of the game. Five copies of *Colossus Chess 4* (available for most popular micros) will go to the most consistent entrants.

In our next issue, dated May 1, we return to Game One, where the Readers are playing black

Game Two



1	Pe2–e4	Pc7–c5
2	Ng1–f3	Nb8–c6
3	Pd2–d4	Pc5xd4
4	Nf3xd4	Pe7–e5
5	Nd4–b5	Pa7–a6
6	Nb5–d6+	Bf8xd6
7	Qd1xd6	Od8–f6
8	Od6–d1	Ng8–e7
9	Nb1–c3	Pd7–d6
10	Bc1–e3	Ke8–g8 o–o
11	Bf1–e2	Re8–d7
12	Ke1–g1 o–o	Re8–c8
13	Od1–d2	Nc6–d4
14	Ra1–d1	Nd4xe2+
15	Nc3xe2	Rc8–c6
16	?	

We're sorry but *Popular Computing Weekly* cannot guarantee to reply to *all* letters requesting a personal answer. It helps us enormously if readers are prepared to have general queries answered on these pages, so, if possible, please do not send SAEs.

Know your rights – and make the best of them

"Excuse me. I bought this here last week. When I got it home it would not work."

"Well we have had no problems with that product before, something must have happened to it after you bought it. Have you fiddled with it?"

When you buy something in a shop you probably do not realise that you have entered into a contract with the owner of the shop (usually a company). The contract has certain special conditions implied in it which Parliament has put into black and white in the Sale of Goods Act 1979 (and for goods and services in another Act). Credit purchases have other aspects not covered in this article.

The conditions implied in a sale of goods can be very simply described

Description

If you buy a cassette or disc which has on the label, or the wrapping, something which says it contains software, or a particular piece of software, then, **in order that the description should be correct,** the cassette or disc must contain that program. Otherwise you would risk buying a blank disc for the price of one with software on it!

Quality

The goods you buy should be of "merchantable quality". That means if they are supposed to be new they should look new. They should also be in working order and good condition when you buy them, unless you knew of any defect beforehand.

Fit for purpose

If you get home and you find that the printer you have just bought, which was described in the shop as a printer which worked with your kind of computer, or the piece of software that you use, **and it does not work with them,** then the printer is not "fit for the purpose".

Even better, say the box does not say anything on it about what it works with and what you need to connect it up (which is all too often the case). If the assistant in the shop tells you that it works with whatever, then, **if it does not,** and you clearly relied on the assistant's skill and judgement, you should be able to return the goods and ask for your money back.

No right to a replacement

Many shops offer to replace faulty or damaged goods if you return them. You may even think that shops have to offer to do this. Not so. If you **return the goods quickly,** then you are saying, "I have not accepted these, they don't satisfy the implied term(s), I am rescinding my contract with you and I claim the amount I have lost – the price I paid – from you."

You never knew what a lot you were saying in the eyes of the law? Well, that is the reason why you are only entitled to ask for your money back, because when you buy something the shop does not promise that it will have another one to replace it. What if it runs out and cannot replace yours? So you see why the law could not imply a right to replacement.

> *"The law cannot help you to stand up for your rights, which means you have to stick to your guns if you feel you are in the right"*

But how would you deal with the situation at the beginning of this article? The law cannot help you to stand up for your rights, which means you have to stick to your guns if you feel you are in the right. Remember that a returned item is a lot more hassle for most shops than a replacement – somebody senior will have to authorise paying you back "out of the till" – and it's an old trick to throw the blame back.

Psychology is going to be more useful than knowledge of the law to start with: do not go into the shop and start by banging your fist on the counter and demanding your rights. Do it quietly, ask to see the manager, explain what has happened, but not necessarily in front of other customers, hear them out, then decide whether or not you will have to "get tough".

To make sure your case is sound you must always act quickly. If you do not, the shop may be able to say that you "accepted" the problem and therefore you have to keep the goods (although you may be entitled to some compensation). Whatever you do, don't try to fix faulty goods, as that in itself can amount to accepting them.

If the shop assistant offers to return the product to the manufacturer, don't let them if you only just bought it.

If you do, say that you reserve your rights to ask for your money back and reject the goods if they are not repaired reasonably quickly. Your contract is with the shop and not with the manufacturer. It's up to them to sort out the problem with the manufacturer.

If goods break down after a period of use, it depends on the circumstances

Most people have a vague idea of their consumer rights, but how many know exactly what they are entitled to, if, say, software turns out to be faulty, or the product turns out to be unsuitable for your needs, or the hardware doesn't match the description on the box? And what safeguards can you take when buying products on mail order?

Here, John Mawhood, a solicitor, attempts to explain exactly what your rights as a consumer are, and how the law can protect you.

> *"To make sure your case is sound, you must always act quickly. Otherwise, the shop may be able to say that you have 'accepted' the problem"*

who you should look to: if there is a breach of the implied terms mentioned try the shop, if not, you may have the benefit of a guarantee, so try the manufacturer.

Remember that it always helps to put something in writing at the time and keep a copy of your letter. It can avoid confusion and disagreements about what has been said later.

Buying on mail order

In the back of almost every computer magazine you can find dozens of ads for mail order companies where, if you have a powerful enough magnifying glass, you can choose between the most popular titles of the moment and any number of peripherals and consumables for your computer. But how can you order them? In most cases they expect you to write with your order and a cheque.

In the vast majority of cases, there will be no problems. Most mail order companies are responsible, well-run organisations.

However, the computer industry has had at least its fair share of tales of woe; orders not arriving despite the fact that the cheque has been cashed; companies ceasing trading while your order is still unfulfilled.

If a company ceases trading – and this applies not only to mail order firms – owing you money, and you have managed to notify it of this, you will probably get a letter from the receiver appointed by ■ bank to wind up the company, asking you to notify them of the amount you claim.

Because you gave the company money when they cashed your cheque you were in "credit" with them so you are called a "creditor". But as a "mere" customer (in legal jargon you are an "unsecured creditor", unlike the bank who will have obtained "security" from the company before letting them run an overdraft) your claim ranks very low ■ the list of creditors. Usually after the Inland Revenue, Customs and Excise, the bank and the trade creditors have been paid off (and that is not guaranteed) there is nothing left to pay off your claim, and there may be hundreds like you.

Recent proposals made to the government that customers' claims should be treated like secured creditors' have been ignored in the new legislation on companies that "go bust".

Unfortunately the problem for anyone who orders goods by mail is that, whilst advertisements in a national newspaper should be covered by their Mail Order Protection Scheme (MOPS for short), it is only the national newspapers and the very large publishing corporations which are members of MOPS, simply because of the expense of joining.

However, there are several steps that you can take when ordering goods, which may help avoid possible pitfalls.

1) Pay by credit card, if possible, for any order over £100. ■ anything goes wrong, you may be able to make the credit card company carry the loss.

2) Cross cheques "Account Payee Only". Your cheque can't then be cashed by the wrong person whether accidentally or on purpose

3) Post recorded delivery or registered post anything you could not afford to have go astray (including a cheque if it is for more than a few pounds).

4) Keep a copy of:

Your order. Who to, what for, for how much, when sent.

Any letter.

A note of any phone conversation. Who, when, what said.

(Where possible keep ■ photocopy, otherwise a signed note of the details.)

5) Cancel your order properly. If you have not received a satisfactory explanation of why your goods have not been sent after a reasonable time (at least 28 days) write to the company giving ■ 14 days to deliver your order and say that if it is not delivered in time your order is cancelled and you want your money refunded.

Then, if ■ does not arrive, either write to your bank to stop the cheque if possible, or write to the credit card company cancelling the payment if it was for over £100

6) If the product arrives, but goes wrong, return the defective goods (recorded delivery or registered post) within seven days and ask for your money back (including postage).

Because it is impossible to cover every aspect of this area of the law in a short general article, I am sorry that I cannot accept any responsibility for matters arising out of ■. If you have a particular problem, ask your local consumer organisation or Citizens Advice Bureau for advice.

Fastest Basic in the test

Ever wondered if there was anything faster than GFA Basic? Duncan Evans says there is – the GFA Basic Compiler

GFA Basic is fast. Very fast, in fact. So, you could reasonably demand to know why, after paying £60 for the Basic, you should fork out the same again for a compiler. The answer is that certain commands tend to lag behind the others in the speed department.

Some of these commands gain quite some benefit from being compiled, the *Repeat-Until* loops, which are normally slower than *For-Next* loops, being a case in point.

The other advantages of compiling your *GFA Basic* program include making it secure against listing by the uninvited, and also the fact that you now don't need any other piece of software, the interpreter or run time module, to execute your file. Indeed, now you can place your executable machine code file in an Auto folder and have the program automatically load and run when the ST is switched on or reset.

To get started with the compiler simply load it up and, ignoring the options which are set as a default for maximum efficiency anyway, click on the *Compile* bar. You are presented with an item selector window and prompted for the Basic file to compile

Once selected the *GFA Compiler* springs into action, compiling away until you are asked for the filename for the resulting machine code program. Thoughtfully the Basic filename originally selected is offered as that filename, but with the *BAS* extender replaced by *Prg*. Just press *Return* and the program is saved on disc, ready to be executed.

Compiling is usually not worry-free, as some commands are not acceptable and various guidelines have to be followed to avoid disaster. The first point to note is that your Basic program must have been saved with *Save*, not *SaveA*, *List*, or *PSave*. Not much of a limitation there, I'm sure you'll agree. Next, the Basic commands which cannot be compiled are *List, LList, Tron, Troff, Dellist, Save, Load, Psave, Stop* and *Cont*. So don't use them!

The only minor problem here would be one program loading another, possibly the main program. However, with a little foresight this should prove no great hardship as you can use *Bload*, and other byte related loading instructions, to load machine code files or blocks of data anyway.

There are a couple of commands which behave slightly differently than they do in Basic, so care must be taken in using them in your own programs. These include *Fileselect, Chain, Resume* and *Resume Next*.

Back at the compiler menu you are given the option of selecting how your program will react when *Ctrl-Shift-Alt*, the standard break combination in *GFA Basic*, is pressed. These range from not responding at all, checking only on certain loops, to checking all the time. The penalty for checking all the time is speed and memory usage, with a decrease in the former and an increase in the latter.

Other options on the compiler menu offer the trapping (or not) of overflow errors when using integer arithmetic, activating error messages or defaulting to error numbers only, and finally, dealing with the bombs that are the result of a system error.

Using any of these options makes the compiled program that bit longer in the end. Still, if you're absolutely convinced that your Basic program is error free then you won't need them, will you?

After compiling a program the resulting machine code file is always longer than the original. For example, one of our 1K *GFA Basic* programs compiled into 7K of machine code. Trial and error will be the only recourse for determining how much larger a compiled program is going to be but for much longer programs 10K or 12K would be the order of the day. Not, I hasten to point out, seven times the original!

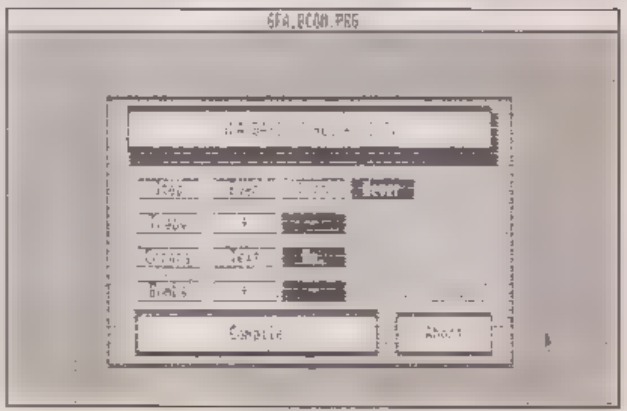
Returning to the speed issue, compiling the PCW benchtest results in an average of 0·6 seconds as opposed to the 1·4 uncompiled. Check out Table One for a blow by blow comparison. In general, the slower *GFA* commands are the ones which gain the most from being compiled.

To conclude, buying *GFA*'s *Compiler* may double your outlay on the language but it is most certainly worth it. Glentop has come up with a quality product again.

Table One

Bench Test	GFA Basic	Compiled
1	0·11	0·05
2	0·4	0·1
3	1·025	0·22
4	1·01	0·28
5	1·09	0·303
6	1·765	0·61
7	2·845	0·985
8	2·945	2·185
Average:	1·40	0·59

"Other options on the compiler menu offer the trapping (or not) of overflow errors when using integer arithmetic, activating error messages or defaulting to error numbers only"



The *Compiler*'s only menu

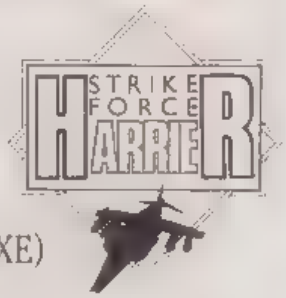
Product *GFA Basic Compiler* **Micro** Atari ST **Price** £59.95 **Supplier** Glentop Press, Standfast House, Bath Place, High Street, Barnet, Herts EN5 5XE.

VISIT MIRRORSOFT AT THE ATARI SHOW

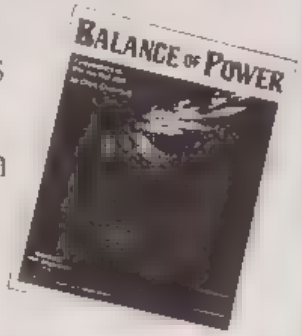
Stand No 72 at the Novotel, 24th, 25th and 26th April

MIRROR Soft

As well as two of the most realistic and exciting flight simulators yet – STRIKE FORCE HARRIER (ST) and SPITFIRE 40 (XL/XE)



– Mirrorsoft will be showing the first of the Cinemaware titles from Mindscape for the ST; SDI features space combat in an exciting flight simulator, combined with romance, intrigue, and heart-stopping action. Also, BALANCE OF POWER, a strategy game of geopolitics in the nuclear age and from Spectrum Holobyte, GATO, a



submarine simulation centred around the control room of a World War II combat submarine.

MIRRORSOFT

Come and see ART DIRECTOR – an exciting graphics package for the ST which allows you to create designs, storyboards or complex professional presentations;

FILM DIRECTOR – for home movie-making and professional animation studios, it allows you to create, assemble and control on screen every element of animated graphics.

Art Director can be used in conjunction with FLEET STREET PUBLISHER which can also be seen in action on the Mirrorsoft stand. Fleet Street desktop publishing software allows you to combine text and graphics to create professional and attractively presented printed material.

FLEET STREET
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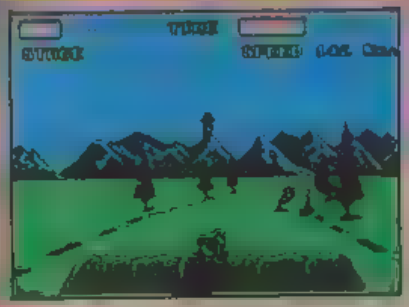
COME AND SEE THE RANGE OF MIRRORSOFT TITLES AT THE ATARI SHOW.
FROM STRIKE FORCE HARRIER TO FLEET STREET PUBLISHER AND MAYBE MORE...

ENDURO RACER



™

This Sega coin-op conversion puts other top software houses to shame. It sets a new standard for arcade tie-ins.

Sinclair User Magazine

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Some day your print will come

Christina Erskine takes an in-depth look at Fleet Street Editor and Newsdesk International on the Amstrad PCW

There are two sorts of desktop publishing. The 'real thing' involves laser printers, Apple Macintoshes, Xerox Documentors (and Atari Mega STs in the coming year), and professional magazine production. Then there is the micro approximation, which includes AMX *Pagemaker*, *Fleet Street Editor* (note *'Editor'*, not *'Publisher'*) and *Newsdesk International*.

The last two have just been released for Amstrad's PCW machines. Since *Newsdesk International*, by Electric Studio, includes some not-very-subtle sideswipes at *FSE* on its packaging ("Streets ahead!!!", "Others have promised!!! Some have advertised!!! Electric Studio have got it!!!"), we're looking at both together in this article.

Fleet Street Editor Plus is an implementation of the Atari ST *Fleet Street Publisher* (reviewed March 20), but scaled down to the hardware limitations of the PCW system, particularly its printer. Thus it comprises a word processor, graphics program, font program, and facilities to put it all together.

Newsdesk approaches the task from a different angle. It is fundamentally a graphic creator, with a font editor tied in. While you can type text directly to the page, there isn't a word processor in the package – you port over Ascii files from *Locoscript* (F7 – Modes from the Locoscript disc management menu). *FSE* will also accept either Ascii or *Locoscript* files.

Newsdesk: lots of fonts for a busy effect

Fleet Street Editor Plus

FSE comes on two discs; the main program contained on one, and the graphics library on the second. Woe betide you if you have an unexpanded 8256 rather than an 8512, because once you start incorporating pictures from the graphics library into your publication, the number of disc changes required becomes irksome.

To get the hang of *Fleet Street Editor* quickly, you need an ordered mind, and a penchant for planning your pages/newsletters carefully in advance. It tells you this in plain English in the manual, but if you're impatient, like me, and start trying shortcuts to get your efforts printed out, you will soon discover that the shortcuts don't exist.

The package divides – roughly – into three main processes: writing text, selecting or creating the illustrations, then designing the page layout.

The whole program is entirely menu-driven, and the options are logically named and ordered, so it doesn't take too long to find your way around the program.

Writing text

Faced with the blank text editor screen, you must first decide which typeface – from a choice of five – which point size – from a choice of four – and what size of column width to use, before you type anything. You must then put up with the fact that once you do start typing in a document, you won't see the effect of the selected size and width immediately. You can, however, call up the depth (length) of your article so far, at any stage.

As a word processor, it is adequate provided that, again, you have planned the document in advance, and don't need sophisticated editing facilities.

That said, the conventional editing facilities you need, such as deleting forwards and backwards, inserting and overwriting words and 'cutting and pasting' blocks of text, are all included. Justification (giving the left hand side of your column, or right hand side, or both, a straight vertical edge) and hyphenation can be added to the document later.

Once the article reaches the required length, you save it to a data disc – here is where you give it a name, and on to the next stage.

Graphics

You can either create your own graphics using *FSE*'s Graphics Editor, which may

not be the *Advanced Art Studio*, but has all the usual options one expects of graphics packages these days, or select pictures from the almost dauntingly extensive library.

The library comprises 26 screens with three to four pictures on each, so you'll probably never get round to using all of them. However, once pulled out of the library on to your data disc, they can then be enlarged, contracted, 'filled' ■ ■ wide variety of patterns (most of which look like obscure Scottish tartans), scaled, rotated, etc, to fit your requirements. These can also be saved to disc, and again you should have ■ pretty good idea of where they will go on the final page, and what size and proportion it will be, to avoid grief and tears when you come to place it on the layout.

Creating the page

A lot of the mechanics of collecting, writing and saving text, drawing, manipulating and storing the graphics are downright fiddly, and I would have liked, as ■ blanket facility throughout the program, a 'cancel that last menu item just selected, I pressed that key by mistake' option.

It therefore comes as something of a relief that the final laying-out stage can be straightforward, so long as your planning was meticulous.

You need to place plenty of 'barriers' on the page to ensure that your text won't cheerfully scroll into your headline, or illustration space, for example, but once your text all fits and your carefully designed graphics don't turn out to look like pin pricks ■ acres of space (I'm skipping over a lot of potential minefields here), it is a comparatively easy task to type your headlines directly on to the page.

A word on printing out the final page/newsletter. You get the choice between draft and high quality. The manual admits that ■ will take a long time to print out ■ page in high quality print. I can tell you from experience that no self-respecting snail would stand for the speed of draft quality print.

Conclusions

If the manual wasn't so clear and comprehensive, *FSE* would be overwhelmingly daunting. ■ ■ a program which takes itself very seriously, and has made each individual module (word processing, creating illustrations, page design) as full of features and options as possible in the available memory. It ■ going to take any buyer a long time to assimilate them all.

Thank heaven, then, for the Guided Tour, a page already semi made up, where the manual takes you step by step through the procedure for filling the rest of it.

Then there is this big gap between what *FSE* is capable of, and what it all looks like when printed out. We've gone through this before in the *Publisher* review on the ST (March 20), and it applies tenfold with the printer supplied with the PCW.

For example, the smallest typesize used by *FSE* (on the PCWs) is 12pt: that's bigger than the word 'Conclusions' written above: the text you are now reading is 9pt.

And whatever font you are using, you are still getting a dot matrix output. Unless, of course, you're a PCW owner with access to a laser printer.

So you will not get a newsletter that looks like ■ professionally typeset document. Sure, there's the facility to use a laser printer with the PCW version, but I don't know a single person who will spend £500 on an 'alternative typewriter' and then £2000 on a laser printer. I'll come back to this point later.

Newsdesk International

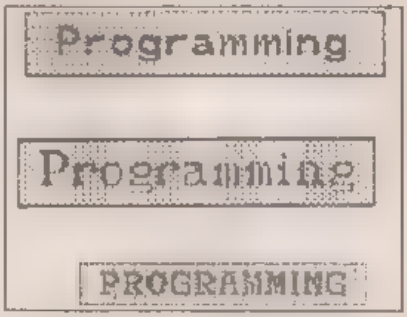
If *FSE* takes itself seriously, then *Newsdesk* appears ■ more 'tabloid' package. I do not mean this in a derogatory sense, but the one example page provided with *Newsdesk* (illustration on the Inlay) shows much more emphasis on large lurid fonts, and exclamatory headlines, than Mirrorsoft's 'Guided Tour' page in the *FSE* manual.

Newsdesk revolves around its graphics package and font editor – indeed, one could almost believe, reading through the manual that any input of text only occurs as a afterthought.

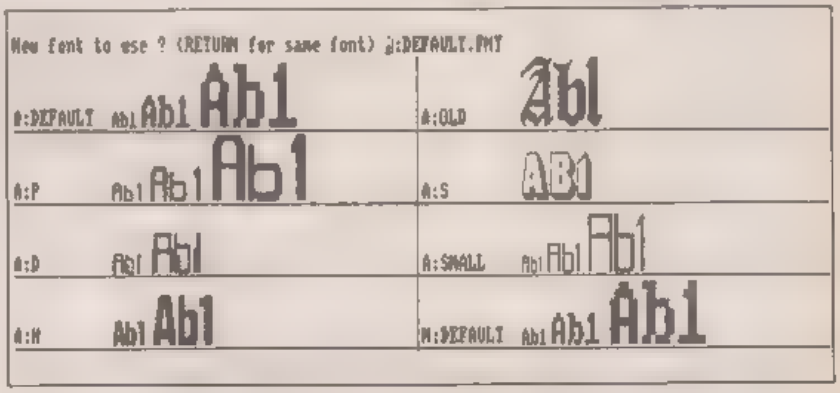
However, transferring documents over from *Locoscript* is made simple by the program. Your document needs to

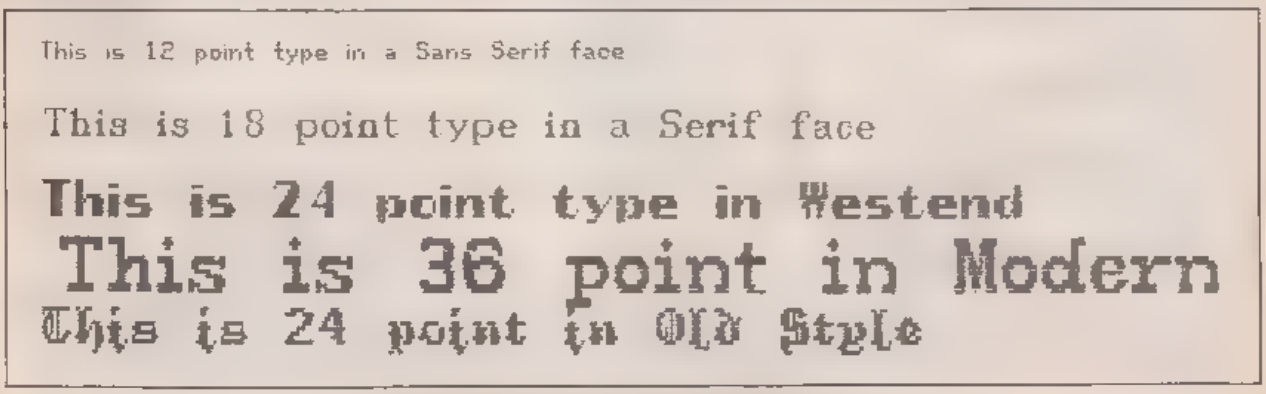
continued on page 20 ▶

Below: headlines can be created as graphics with a patterned background



Below: the eight fonts available in *Newsdesk*





Fleet Street Editor: type sizes and faces (actual size)

◀ continued from page 19

have been saved as an Ascii file in group 0 – from there on follow the screen prompts within *Newsdesk*.

Once your document has been transferred, *Newsdesk* has a 'mini editor', which enables you to amend the document. This is for simple deletion or tidying up spelling mistakes.

If you input text directly, you will find there is no word wrap, so if only part of a word will fit on one line, you must manually delete it and press *Return* to get to each new line. Text can then be justified, and hyphens put in to tidy up lines.

When writing headlines, the text line can be manipulated to different sizes using the *Paste* key, and each letter can be zoomed if you want to, say, thicken strokes or alter the look of any letter.

Font editing

Eight fonts are provided with *Newsdesk*, the default font, plus seven on side two of the disc. Each can be modified using the font editor. You can select individual letters to be modified and add pixels to thicken strokes, or include extra lines – changing the style of the tails of g, j, or y, for example – and pixels can also be deleted.

Newsdesk gives you three choices of typesize, 12, 24 or 36pt, as opposed to *FSE*'s four.

Using this option to actually design your own character set would be an astonishingly laborious task, but it can be used with, say, individual letters to make distinctive capital letters in headlines.

Graphics

Draw freehand using 'pen', alter the thickness and texture of a brush stroke, draw lines between one point and another, a spray can option, set single pixel dots, plenty of patterns (more extinct Highland clans), a zoom facility, add text to graphics, facility to draw various shapes – it's all there.

Scaling, rotation and distortion of your pictures is also possible.

Creating a page

Selecting 'set text' from the 'windows' menu will bring up a text window on screen, whose shape you can alter if you wish, for the input of text files. Selecting 'set screen' allows you to work directly to page, within that screen window. The screen you will be given is about three quarters of a page across, and about one third of a page in depth, which is an odd size to be working on, and it can't be altered.

Again, like *FSE*, so long as you can keep track of where you are on-screen – and it's not quite so easy with a partial 'window' – the results are quite satisfying.

Conclusions

If you use *Newsdesk's* facilities to the full, ie, you play around with editing fonts, mix up text sizes and typefaces, you will get a very "tabloid" effect, brash and busy.

Since all the arguments above about the finished presentation of the document being limited to the capabilities of the PCW's printer, apply just as equally here, and since *Newsdesk* is designed only with the PCW printer in mind, it will also be a fairly 'ham' tabloid look.

It is worth stressing that this is down to the hardware, rather than the software, with both programs. But then, the PCW was never intended as a typesetting machine.

However, the bottom line is that if you have a PCW and want to produce mixed text and graphic documents (such as newsletters), then you can do one of three things: you can use a typewriter/word processor, pots of glue and a photocopier, you can use a 'desk top publishing simulator' such as the programs discussed here, or you can have the whole thing professionally typeset. *FSE* and *Newsdesk* may be £70 and £50 respectively, but they're a lot cheaper than professional printing, and they look more exciting than messing around with glue.

Both packages can be used in conjunction with the Electric Studio *Lightpen* when creating graphics. *FSE* is compatible with the Kempston mouse in all sections of the program, and *Newsdesk* similarly with the Electric Studio mouse. *Newsdesk* will also take input pictures from Electric Studio's video digitiser.

Both packages can use other centronics printers (you need to change the device code from CP/M). The difference is that the *Newsdesk* manual doesn't tell you this. In *FSE*, you can use an Epson-compatible laser printer, if you have access to one; this facility is not available in *Newsdesk*.

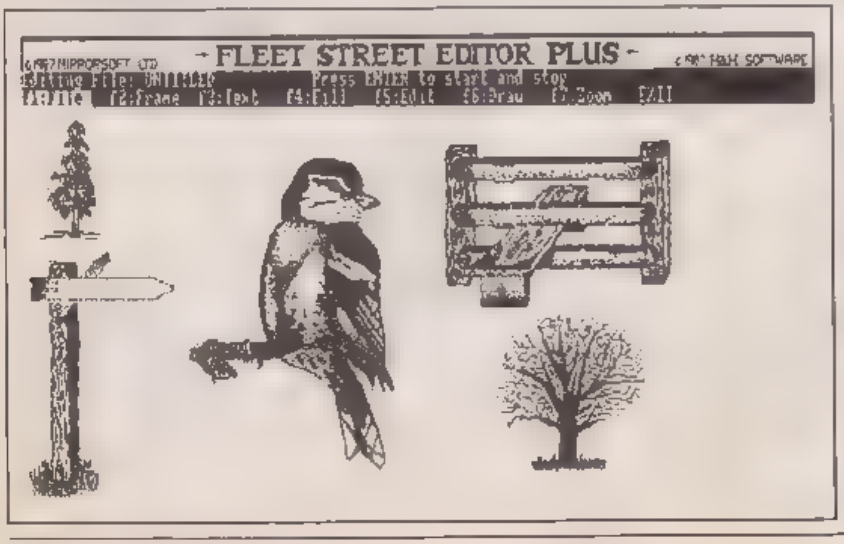
Fleet Street Editor is an altogether more complicated package, and more powerful in its range of options. It is also probably slightly more difficult to get going with *FSE* straightaway.

However, *FSE* is rescued in this aspect by its clear (though hardly concise – it's a mighty tome) manual. The *FSE* manual contains a contents list/index, which the *Newsdesk* handbook cries out for. It also has its Guided Tour, which gives a good introduction to the basic procedures involved in *FSE*, and gives you a fair idea of where this text-filing and graphic-editing is leading in the end.

You can tell *FSE* is an altogether more soberly-inclined product, with its glossary of printing/computer terms, 'hints on tips' on designing newsletter pages, and appendices on subjects like duplication and binding the finished product.

Newsdesk places much more emphasis on playing around with fonts, and graphic aspects of the program, and the manual, apart from being about a quarter of the size, doesn't always appear to keep its overall objective (creating a newspaper-style set of pages) in view.

The best way of describing it is probably saying that with *FSE*, you're getting the equivalent of the *Daily Telegraph*; with *Newsdesk* something more akin to the *Daily Mirror* (apologies to Mirrorsoft, which is after all part of the Mirror newspaper stable).



Page 004 from FSE's graphics library – these can be edited

Program *Fleet Street Editor Plus* **Micro** PCW 8256/8512 **Price** £69.95 **Supplier** Mirrorsoft, Maxwell House, 74 Worship Street, London EC2A 2EN.

Program *Newsdesk International* **Micro** PCW 8265/8512 **Price** £49.95 **Supplier** Electric Studio, 13 The Business Centre, Avenue One, Letchworth, Herts SG6 2HB.

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Transmuter	Spectrum	C64	£2,500
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Grand Prix Simulator	Amstrad	Atari	£3,000
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Ghost Hunters	Spec Amstrad	Amstrad	£2,500
Transmuter	Spectrum	C16	£2,500
BMX Simulator	C64 Spec Amstrad	C16	£2,400
Pro Snooker Simulator	Spec Amstrad	C16	£2,400
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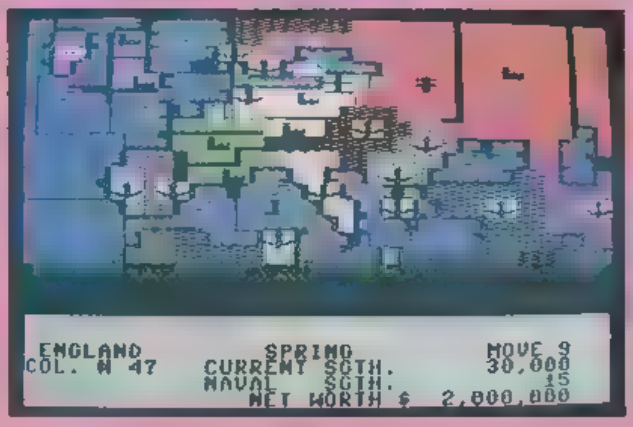


Return to days long gone

Having seen the more modern style of wargame recently, in the shape of *Balance of Power* and *Apocalypse*, the arrival of SSI's *Colonial Conquest* heralded a welcome return to the old days, both in terms of style and period.

Set around the turn of the century, the game lets up to six players (human, computer or passive) take on the leadership of England, Germany, France, USA, Japan and Russia, and vie for control of the minor countries of the world with espionage, diplomacy, bribery, armies and fleets to call upon. The playing area is a smooth scrolling map of the world four screens wide by two screens high. It is presented with very colourful but distinctly low resolution graphics. Dotted around the map are the supply centre cities of the major powers and, when in the appropriate phase, the ports and occupied minor cities.

The playing year is split into four phases, from Spring through to Winter during which armies and fleets can move once and attack any bothersome natives or clash with one of the other players. At the beginning of every year each player goes through a building phase, when, in addition to building up your forces, you can attempt to spy on territories around the globe to determine the incumbent troop strength and economic value, buy out the natives, fortify countries and give economic aid.

In order to be the victor you must accumulate a pre-set number of victory points. The points can be accumulated by defeating opponents in battle, building troops and treating vast tracts of land to a spot of imperial oppression.

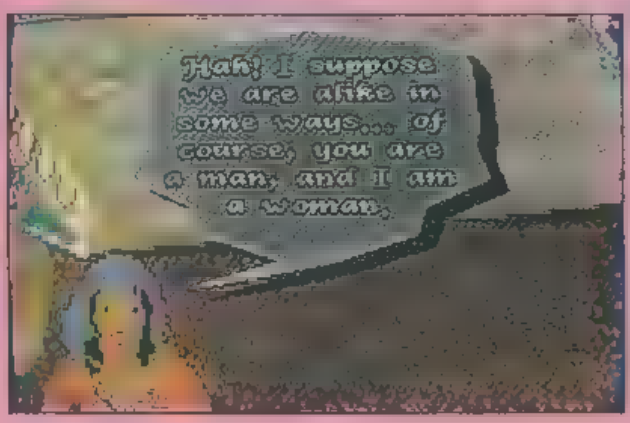
Colonial Conquest is very much in the board game and *Diplomacy* mold and surprisingly, is executed very well indeed. Aside from a few minor niggles, hours of grand strategy from days long gone are but a disc access away.

Popular Appeal ◆◆◆◆

Duncan Evans

Program *Colonial Conquest* **Micro** C64 **Price** £24.99 (disc) **Supplier** US Gold, 2–4 Holford Way, Holford, Birmingham B6.

Sail the Seven Seas with magnifying glass in hand (Thanks to G&B Computers, Tottenham Court Road)
Interact with characters such as the sultry Libertina



Arabian night

Here we have the third of the Master Designer/Mindscape Cinemaware products to reach these shores, and now the programmers have turned their attentions to another famed movie, *The Arabian Nights*. These tales, together with the Mystery of Why Anyone Buys Kra-Ora have been one of the longest running sagas in Hollywood.

The story has you, Sinbad, summoned back to your home city of Damaron by your childhood sweetheart Princess Sylphani (using the magical equivalent of a radio-pager) to discover that the old Caliph, her father, has been turned into a falcon, just before he was about to announce who was going to succeed him to the throne.

Naturally, the Caliph is incommunicado, being in avian form and interested in nothing much more than cuttle fish and Trill, so it's up to you to search the seven seas to find a cure.

At the same time you must take over command of the Caliph's army and defend Damaron from the hordes of the Black Prince.

You sail around the world gaining knowledge and artifacts that will cure the Caliph, taking on an assortment of hazards and villains with trusty joystick in hand as need be. With well over 70 locations to explore and a supporting cast to interact with, it's just like being at Saturday morning movies again only with a few naughty bits added. As usual with the Cinemaware products, the standards of graphic and audio presentation are very high indeed and the designers seem to have gone a long way towards that ideal of combining adventure, strategy and arcade elements into one playable unit.

There is still room for some improvement, the illusion that there is a 'real' fantasy world in the computer has yet to be perfected, but Mindscape is starting to come close.

Popular Appeal ◆◆◆◆

John Cook

Program *Sinbad and the Throne of the Falcon* **Micro** Amiga **Price** £39.95 **Supplier** Mindscape, via Mirrorsoft, Maxwell House, Worship Street, London EC2.

Learn to manoeuvre

MGT is one of the slickest bits of graphic action to grace a computer screen.

It looks deceptively simple. A tank that manoeuvres like a hovercraft, a series of rooms and doors. Find your way to the final room. Unfortunately, many of the rooms are far from easy to negotiate, thanks to the presence of blocks of ice and other hazards.

Some doors are blocked by lasers. You need to find matching key panels and zap them with your own armaments to disable the doors.

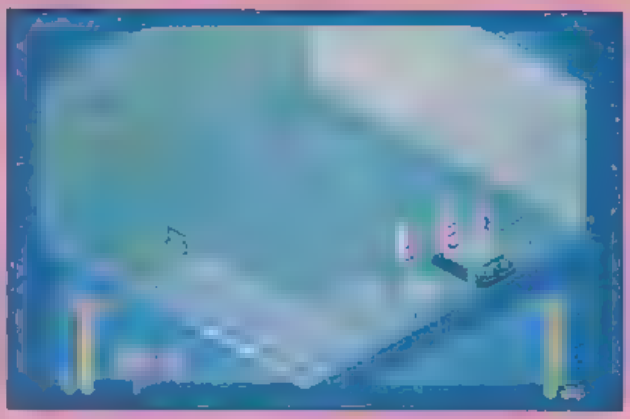
In other places there are lifts that will give you access to the raised ice blocks.

But what sets *MGT* apart from the usual arcade/puzzle program is the quality of the graphics. Rooms are presented in outstanding 3D effect, the Crystal Palace itself being decked out in suitably frosty tones of blue.

One criticism: there's no scoring system; you either succeed or fail. Apart from that, *MGT* is a first-class game requiring both arcade skills and a puzzle-solving approach. Recommended.

Popular Appeal ♦♦♦♦

Peter Worlock



Program *MGT* **Micro** Atari ST **Price** £24.99

Supplier Loriciels/Activision, Pond Street, London NW3.

Just like R2D2

John Cook

Program *Martianoids* **Micro** Amstrad CPC **Price** **£9.99 Supplier** US Gold, 2–3 Holford Way, Holford, Birmingham B6.

The latest from the dormant Ultimate stable, which has been concentrating on coin-op design recently, under a different name. And the bad news is that it still seems to be very much treading water rather than inovating, as used to be the case.

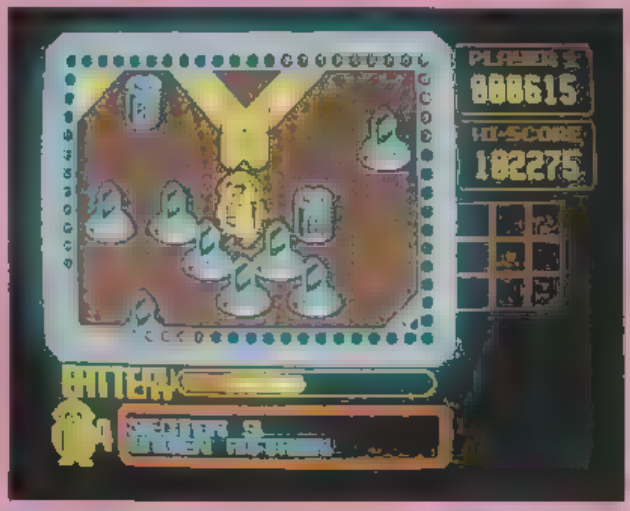
Having grumbled about that, Ultimate has delivered a game with its graphic hallmark stamped all over it and a design that still leaves hope that the nameless ones haven't completely run out of decent ideas yet.

You control a little R2D2-like maintenance droid, with nine sectors of The Brain to look after. However, said Brain has been attacked by Martianoids, disrupting the passage of programs (floaty bits of printout paper) as they pass from the Transmitter to the Receiver in each sector.

So, you zap the aliens, replace the bits they damage and mind the programs along their little way – as the sectors' internal defences are activated as the program reaches its destination – leaving you to concentrate on others.

Nicely implemented on the CPC (also available on other formats), this will certainly cheer Ultimate supporters (if there are any left) but will not drive anyone into a wild frenzy of excitement.

Popular Appeal ♦♦♦



Just jolly

Much celebration, hang out the bunting, fire cannons, declare public holidays, etc, at last someone has produced a *Super Sprint* clone.

Grand Prix Simulator certainly draws heavily on this for its inspiration, but replaces the wheel with joystick or redefinable keyboard options. It's simple faster/slower, left/right stuff, but the going is tough as you race against one computer-controlled opponent with the option of a second player joining in at the same time.

The screens are colourful, but the cars themselves lack detail – being different coloured oblong blobs – but this doesn't detract from the enjoyment, and a few frills have been added with the introduction of some sampled speech.

Admittedly, it doesn't have all the features of *Super Sprint* itself – that'll have to wait for the official conversion by Activision in the summer – but for now, it's the best there is.

Popular Appeal ♦♦♦♦

John Cook

Program *Grand Prix Simulator* **Micro** Amstrad CPC **Price** £1.99 **Supplier** Code Masters, 1 Beaumont Business Centre, Beaumont Close, Banbury, Oxon OX16 7RT.

Spring 1987 £1.50

ST Update

COME AND SEE US AT THE ATARI SHOW

SET FOR TAKE-OFF

ST flight simulators

IT'S SELLING FASTER THAN HOT CROSS BUNS!

Incentive's winning hat trick

Tony Bridge reviews the newest adventures – and tells how to wreak revenge on your bank!

The 'nightmare' of bureaucracy is a bit of a cliche, but I'm sure that everyone has had to deal with the dreaded red tape at one time or another.

Not many of us though, get the chance for any real revenge – the latest Infocom adventure, however, is Douglas Adams' supreme revenge upon a faceless bank, after an oh-so-familiar story of a cancelled bank-card. *Bureaucracy* begins with you about to embark on a holiday trip to Paris – only you haven't reckoned with officialdom.

The adventure has yet to be released ("next month", they say), so all I can tell you is that you will be able to get your own back on the bank, as well as meeting an eccentric assortment of characters ranging from a greedy llama to the paranoid owner of a camouflaged house. Wrap all that up in the usual brilliant Infocom packaging and add the name Douglas Adams and you've got what is bound to be a winner.

Another new product this month is *The Ket Trilogy* from Incentive. Most of you will realise that this isn't exactly new – the individual programs of the trilogy were originally released starting about 1984, I think. There was a prize, too, for the first person to work their way through the three parts – Tom Frost, whose Tartan Software I looked at in detail recently, became the adventurer of the year for managing that feat.

> *"As each location in the Ket Trilogy is visited, another part of the jigsaw is added to the screen display . . . it's nice to see the village of Ket at last!"*

The adventures themselves were written by Richard McCormack and Mike Nelson before the days of *Gac* and *Quill*, and were excellent tests of logic, well-presented with good screen layouts, and plenty of D&D-like combat. The games contain several in-jokes which might baffle people; there is a certain magic word in the tradition of Plugh and Plover, which is Talps – you would need to know some of Incentive's ancient history to work that one out. And overseas players may not understand the reference to the mint hole and the associated password.

The new version is for the Commodore: all the features of the original three-parter are there, along with something new and almost unique. As you wander around and explore the land of Ket, you, lucky Commodore owners can forget about those scrappy bits of paper lying around the living room – you have your very own on-screen map.

As each location is visited, another part of the jigsaw is added to the screen display. Along with a little relevant picture, you'll also be given a picture of any character or object – it's nice to see the village of Ket at last!

As far as I know, the gameplay remains unchanged; *The Ket Trilogy* has been a favourite adventure of mine for years, and now Commodore owners can share in the battle to rid the land of Ket from the twin tyranny of King Vran, leader of the mad monks and the high priestess Delphia, the most beautiful woman in existence – but beware, for they are both extremely cunning and devious.

So, three great classic adventures in one package for just £7.95 – plus a fantastic saving in blank paper, what a bargain!

Ultima IV on Commodore 64. Where is the shepherd? (Eighth member of the travelling party.) Graham Boston, 53 Linden Avenue, Prestbury, Cheltenham, Gloucestershire.

Zakki Wood on MSX. How do I get the plinth in the pit of snakes? G. Fell, 16 Alexandra Gardens, Penzance, Cornwall TR18 4SY.

Morden's Quest on Amstrad CPC. Where do I find the blue directions, the well, spiderman, octopus, iron, pyrites, jester, paint, diamond and narrow crawl? **Dracula on Amstrad 464.** I need the name to give the coach driver after leaving the inn after the first night. **Smugglers' Cove on Amstrad 464.** I need words on how to get the donkey into the harness to operate the lift. I can offer help on the following adventures: Red Moon, Seabase Delta, Jewels of Babylon, Heroes of Karn, Message from Andromeda, Forest at World's End, and Warlord. L. Kingshaw, 104 Farnborough Road, Clifton Estate, Nottingham NG11 8S4.

Dracula on Commodore 64. How do I keep from freezing to death on Dracula's coach? L Kingshaw, 194 Farnborough Road, Clifton Estate, Nottingham NG11 8S4.

The Tracer Sanction on Amstrad 1512. What do I do with the torch and how do I light it? Any other hints also welcome. I can offer advice on Hitch-hiker's Guide to the Galaxy. Ian Matheson, 26 Mosshead Road, Bearsden, Glasgow CG1 3HN.

Bored of the rings on Spectrum. I can't find the scissors and don't know what to do about the Kremlins. J Munro, Flat 3, 56 West Hill Street, Perth PH1 5QP.

How to become an ace hacker

Tony Kendle explains the basics of finding your own cheats and poke routines

This week, in response to several letters on the subject I want to recap on the systems that can be used for finding your own pokes and cheat routines for machine code games.

Inevitably you will need to have had at least some familiarity with Basic and with the rudiments of machine code to be able to follow the explanations, but it really isn't as difficult as you probably suspect.

The first step is to load the machine code portions into memory without letting the game start running (of course once it does you will be unable to break out of it again for entering the poke). Getting access to the code in this way will allow you to find and enter your pokes.

However this may be the most difficult part if the game has been protected in any way, and often hackers have to use some very advanced and devious tricks to get pokes into the game, and really that is all part of the fun.

In the future we may have time to illustrate some of these more advanced techniques, but I suggest that for the time being you look out for an old game which hasn't been protected to practise on. Many releases by budget software companies will also do, as they find that the low cost of the game doesn't warrant elaborate techniques, and is itself a disincentive to pirating.

The code does not have to be loaded into memory in the same locations that it is when the game is running, but you must know the relative address changes for your pokes to be valuable to anyone else. For example if the machine-code of a game normally loads at memory location 10000 you may want to load it at 15000 to allow room for a disassembler program as well. This is OK as long as you remember to remove 5000 from the addresses of the pokes you find.

It is worth pointing out that a good dissassembler/monitor program will be invaluable if you want to start hacking, but it isn't strictly essential for simple games. What you *must* have however is a simple book explaining the rudiments of machine code on your particular machine and especially the meaning of the various binary op codes – the instructions to the computer that are signalled by the numbers held in memory.

If you do buy a dissassembler it is important that it is compact and relocatable so that you can squeeze it in around long games – the ideal is software on Rom, such as is commonly available for BBC or Amstrad CPC as this takes up almost no memory room leaving you free to load the game code in exactly the right place.

If your software comes on disc it is possible to use a good disc sector reader and editor to track down cheat routines and enter 'pokes' without even loading the game at all. An excellent example of one such program is *Ultramon* from Bubble Bus.

The following example draws on the typical routines found on most old Spectrum games. Owners of other machines will find the principles identical, if not the detail.

Most old Spectrum games have a short Basic loader which you load and start by typing *Load""* This loader in turn loads the main machine code of the game into memory, and then starts this running. Occasionally the Basic will also do things like set up the screen colours, print a *Please Wait* message or play a little tune.

You must first load this Basic program into memory without it actually running. This is normally achieved by typing *Merge ""* (Owners of other machines like the Amstrad CPC may need special Basic deprotection programs to do this).

The Basic program will look roughly like this:

```
10 LOAD "xxx" SCREEN$      Loads the screen picture
20 LOAD "code", 20000      Loads the machine code to memory location 2000
30 RANDOMISE USR 20000     Calls the machine code at 20000
```

To get the machine code into memory all you have to do is type as a direct command:

```
LOAD "code" 20000
```

If you want it somewhere else in memory type:

```
LOAD "code", new address
```

> *"Our salvation lies in the fact that out of all the hundreds of possible combinations of commands that are used in machine code, there are only a few different options available to programmers that can be used in the addition and subtraction of numbers"*

So once this code has been loaded where you want it, what on earth do you do next? You can use a monitor program to look through the memory, or write a small Basic program that starts at the loading address, peeks the contents of that memory location, prints the result of the peek to the screen, and then moves on to the next memory address.

You will see that the memory is full of thousands and thousands of numbers – how can you possibly find a poke for infinite lives amongst that lot? Even if you put the code through a dissassembler the output looks only marginally less hostile and obscure.

Our salvation lies in the fact that out of all the hundreds of possible combinations of commands that can be used in machine code there are only a few different options available to programmers that can be used in the addition or subtraction of numbers.

Essentially we are looking for the part of the code that does something along the lines of 'Take the figure for the number of lives, if this figure is not zero reduce it by one, (because the idiot has just flown into another laser base), and put the new number back where you found the old one. If the original figure *is* zero print *You Lose* etc.'

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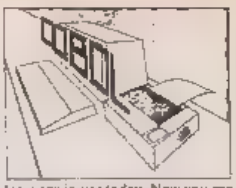

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The sound of editing

Synthesizer editors examined by Mark Jenkins . . .

As far as micros are concerned, musical applications are divided into three main areas. The first is sequencing, and it's obvious that using micro with a ready-made memory and set of controls makes sense when the alternative is to develop a complicated hardware sequencer complete with operating routines.

The second application is patch storage, and again it makes sense ■ use a micro's disc drive or tape dump when Ram cartridges can cost to up to £70 just to store 64 sounds.

The third application, sound editing, has not always been so obvious. You'd have thought it would be possible to edit the sound of any synthesizer on the market, but the fact of the matter is that knobs and sliders are at ■ premium nowadays and most manufacturers try to get away with the minimum of editing controls. Yamaha's DX7 features 147 sound parameters, forty-odd function selector switches and just one editing slider, while their rack-mounting TX812, which is in many ways more powerful, has just four main controls.

Adding a screen display plus a set of control knobs ■ the form of a micro can make all the difference ■ you're struggling to make up new sounds. Many synths now on the market benefit from this approach, and the Caged Artist series of packages from Dr. T make the most of the micro approach to editing.

Packages so far available are CZ-Rider for the Casio CZ synths (Apple, C64), DX-Heaven for the Yamaha DX7 (Apple, Atari ST), TX-Heaven which can also cope with the keyboardless TX7 synth (Apple, C64), Kawai K3 (Apple, C64, ST), DX21/27/100/FB01 (Apple, C64, ST), Oberheim Matrix 6 (Apple, C64, ST version coming), Roland JX-8P (Apple, C64).

Here we're looking at the DX21/27/100/FB-01 editor which sells for £120. The DX21 keyboard itself is now available at ■ bargain price and will allow you to play any two polyphonic sounds, split or layered together with chorus, while the DX27 will play just one sound and the FB-01 is a rack-mounting module which ■ multitimbral, so that its eight voices can all play different sounds simultaneously if desired. This can either be controlled from a keyboard, with the different sounds playing in different zones, or from ■ sequencer, with different sounds playing on different Midi channels.

Unlike the Ensonia ESQ-1, which has 'floating' voice allocation, the FB-01 has to be told how many voices to allocate to each sound. However, that needn't be too limiting, and you could easily create a set of sounds which offered an octave of monophonic bass at the bottom of your control keyboard, then an octave of three-note polyphonic strings, then an octave and a half of two-note polyphonic brass, a monophonic lead line sound, then a few notes spare for a silly sound effect.

> *"The program is largely controlled from the mouse, but you can enter some values numerically if you prefer. There are also Midi parameter changes such as filtering out program changes"*

Editing all that can be quite a chore, which is where the Caged Artist package comes in. Eschewing the Gem graphics environment, it displays a simple list of the names of voices currently in memory and allows you to zero ■ on any one of them for editing. Once you flick to the Edit page, all parameters of that sound are visible immediately.

There's a graphic envelope display which you can drag around which shows you the level envelope for each of the four operators (sine wave oscillators) and you can switch each operator on and off. The algorithm – the way in which the operators affect each other – can also be quickly altered.

At the bottom of the screen is an area listing the other parameters available – modulation type and speed, performance controls such as pitch bend depth and so on. You can step from one operator to the next and the scale of the display can be re-defined if the envelope time is particularly long.

It's possible to 'mask' parameters so they're not affected by any changes you make, and you can select 'Randomize' for any set of parameters to create entirely new sounds. Any changes made on the screen can actually be heard to occur on the synth itself; completed files can ■ named and saved and it's also possible to convert DX-100 files fairly accurately into FB-01 files.

The program is largely controlled from the mouse but you can enter some values numerically if you prefer. The colours of the screen display can be altered to suit your taste and there are various useful Midi parameter changes such as filtering out program changes, something which the FB-01 itself does not allow you to do.

You can run the program from a Ram disc which speeds up saving and loading, and the very helpful handbook gives hints and tips on using the program, making the most of the synthesizer you've selected, and understanding the differences between the DX100/27/21 and the multi-timbral FB-01.

Overall the Editor – referred to for convenience as 4-Op, since it edits all Yamaha's recent four-operator synths (including the TX81Z, with some reservations) – ■ a pleasure to use, and absolutely invaluable in conjunction with an FB-01. However, abandoning the Gem environment makes ■ look a little plain and forbidding at first, but this impression soon passes. It's not fantastically cheap, but it's much cheaper than abandoning all your powerful-sounding, hard-to-edit synths and going back to old-fashioned ones with acres of knobs and switches.

Take Note, Unit 7, 43 Carol Street, Camden Town, London NW1 0HT. 01-485 2988.

If you have any queries or tips for this column, please write to Mark Jenkins at *Popular Computing Weekly*, 12–13 Little Newport Street, London WC2H 7PP. Mark would also welcome examples of your own music on audio or program tape, or disc.

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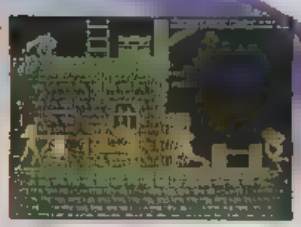

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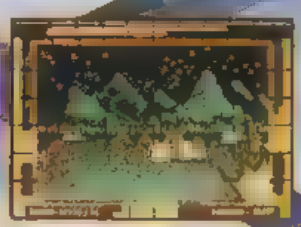

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SPECIAL supplement

1987
April 17–30

COMMODORE MICROS

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Rainbird's Advanced Art Studio gets the best from 64 graphics

Commodore's improved market position now looks like being boosted by the long-awaited, competitively-priced Amiga 500. In this supplement we look at the power of the Amiga, and the programs such as **Starglider** which exploit the machine to its utmost.

Not forgotten is the world's most popular home computer, the 64. We review the latest version of the WIMP system **GEOS**, and its new accessories.

Also previewed is the **Advanced Art Studio** - the best graphics yet?

Last but not least, Supersoft's C128 hardware and software packages promise add new power to this unjustly neglected machine.

The fight against Atari seems to be bringing out the competitive spirit in both Commodore and in the third party manufacturers. The battle is on! ◀

C128-aid

CHRIS JENKINS ON SUPERSOFT'S NEW RANGE OF C128 UTILITIES

The Commodore 128, and to a lesser degree the 128D "business" version, has never quite lived up to its promise. Partly, this is the fault of Commodore, whose marketing failed to exploit the machines' potential. Partly, it's the fault of software manufacturers who took the easy way out and continued to produce 64K software, rather than exploiting the 128's extra memory and facilities. Partly, it's the fault of the hardware design, which adds nothing new to 64K mode operation, and makes 128K operation difficult.

One of the few companies committed to redeeming the 128 is Supersoft. Three new products are on the way; the **128 Plus** replacement ROM, the **Blitz 128 Compiler**, and the **64/128 Help Cartridge**.

128 Plus is the quickest and most straightforward product to explain. While the 128 keyboard has features which are not included on the 64, these are disabled in 64 mode operation so as to minimise software incompatibility problems. The extra features include a numeric keypad (useful for spreadsheet applications), + and − keys, and ENTER key, an extra four cursor keys, ESCAPE, CAPS LOCK, and NO SCROLL (useful when studying listings).

128 Plus is a replacement kernal ROM which activates all these functions in 64 mode. Fitting is simply a matter of opening up the computer (not so simple in the case of the 128D), removing the 64 kernal ROM and inserting the 128 Plus ROM.

Help!

All this is very useful, but there are also hidden bonuses including a new command format which simplifies disc operations. For instance, LOAD"$",8,LIST becomes @$.

Supersoft also claims that using 128 Plus makes Basic programs run up to 60 per cent faster – but just in case operations cause any software incompatibility problems, you can switch back to the original ROM just by pressing in the 40/80 column display switch before powering up.

128 Plus costs £19.95, and looks like a worthwhile investment for 128 owners disappointed at their inability to use the machine's improved keyboard in 64 mode.

Even more powerful is the Supersoft **Help** cartridge, at £39.95. Like many similar products on the market, it provides a toolkit of useful programming instructions, enhanced DOS commands, a machine code monitor, and an assembler. Uniquely, though, it operates in 128 mode using the full 128K memory.

After plugging the cartridge in, setting the switch on the back to 64 or 128 determines the power up mode. If you are using a 64, setting the switch to 128 disables the cartridge.

Many of the new commands will be familiar from other products such as the Robtek **Turbo Cartridge**, H&P **Final Cartridge** or KCS **Power Cartridge**. #A appends one program onto another; #D deletes blocks of Basic; #H highlights programming errors; #G generates line numbers; #T switches on a program trace function; #V lists the values of all non-array variables; #L lists programs a page at a time; and there are dec/hex

continued on page 35 ▶

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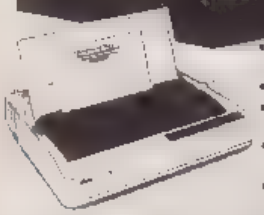

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convertors, line compactors, free memory displays and so on. There are over twenty new commands available in total. In 128 mode, the cartridge can be disabled using #K.

Symbols such as /, %, < and ▒ are used to load, run, save and verify programs on disc. There are also abbreviated commands to format and validate discs, rename and copy files, and so on.

Monitor

The monitor and disassembler, which work in either 64 or 128 mode, allow you to disassemble machine code routines step by step, transfer blocks, switch banks, and even disassemble memory in the disc drive. The manual, though, assumes that you have a working knowledge of machine code.

The two-pass assembler allows labels to be used in place of addresses and constants, and takes its inputs from source files on disc which are typed in as if they were Basic listings. Assembled programs can ▒ saved using the 128's built-in machine code monitor.

While the Help cartridge is obvious short of many of the functions of rival products - printer utilities, sprite killers, program backup routines and so on - it is ideal for the 128 programmer who wishes to make full use of the micro's enormous memory.

If you can't cope with machine code, there is an alternative in the form of the Blitz Basic Compiler. Like the versions already available for the 64 and PET computers, the 128 version, on disc only, allows you to compile Basic programs into a fast-running, unlistable form with little or no alteration. Cost is £29.95.

After loading the compiler, you insert the disc containing the Basic program to be compiled. You then have six options to choose from: single, dual or two single drives, either using the COLLISION and RESUME commands with full syntax, or with no COLLISION command and abbreviated RESUME. The second set of options will run 15% faster than the first set, and will take up 20% less memory space.

Having chosen the appropriate option, there are five compiling modes to choose from, the first chosen automatically if you have a single drive, the others suitable for two drive systems.

Mode 1 saves the compiled program on the source disc with a c/ prefix. It also generates a second file with the prefix z/, containing cross references to the original listing for use in debugging. The run-time routines required to execute the compiled "p-code" are incorporated in each program independently.

Compiler

Mode 2, Batch Compilation, compiles all the programs on the source disc at any one time, and writes them to the destination disc. To save time and disc space, no cross reference files are created.

Mode 3 batch compiles, but includes the run-time routines only in the first program - this mode, then, is only used if the first program calls the others and passes parameters to them.

Mode 4 is similar to mode 3, but also creates a list of all variables and arrays. All arrays must be dimensioned in the program module which will reference them first, if you wish to use this method of chaining.

Mode 5 is similar to mode 1, but incorporates no run-time routines ■ the compiled program.

Blitz checks and reports on syntax, type mismatch and undefined statement errors during compilation. Errors in program logic, though, can only be reported when you run the program, and since the line numbers are stripped away all you are given ■ a program counter value. This is the value of the cross-reference file which is produced in 128 mode.

Blitz uses true integer arithmetic to speed number-crunching, disables the RUN/STOP key while a program is running, and can cope with machine code routines either in the form of Basic data statements or loaded separately from the main program. It will automatically identify most commercial extensions to Commodore Basic, and leave them uncompiled, allowing them to be used if the extension is installed at run-time. Compiled programs are around 60% of the original size.

All of Supersoft's 128 products are valuable additions to an under-exploited micro; and the good news is that there are even more on the way. ◀

Supersoft, Winchester House, Canning Road, Wealdstone, Harrow, Middlesex HA3 7SJ, 01-861 1166.

HOW MUCH IS THAT AMIGA IN THE WINDOW?

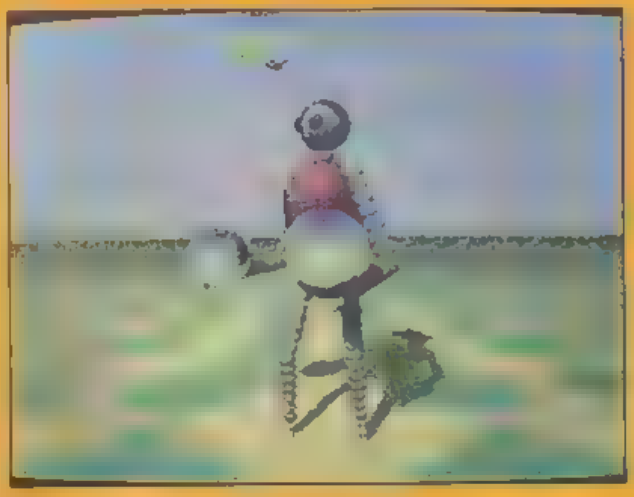
AMIGA POWER AT ATARI ST PRICES? CONRAD PLANCK LOOKS AT THE A500

At last it looks as if the Amiga's unrivalled graphics and processing technology are going to become available at an affordable price. The A1000's special processing chips and advanced disc operating system made it the most exciting new computer of 1986, its price, though, proved a shock for enthusiasts.

The new models, the A2000 business system and A500 home computer, have sparked a new wave of interest in a computer which at one stage appeared to have been knocked out by the Atari ST; superficially a similar, but cheaper, package with its 68000 central processor and high-quality graphics.

The A2000 is aimed at the business market, with 1Mb RAM expandable to 9Mb, and optional IBM emulation and 5.25 inch disc drive in addition to the standard 3.5 inch drive. Cost will be around £1288 without monitor.

More interesting in many ways is the A500, aimed directly against the Atari ST, with a £587 price tag, TV modulator, single-unit design with built-in 3.5 inch drive, 512K RAM, and the graphics and sound capabilities of the A1000.



Enthusiasm for the new machine has already been voiced by a number of software houses. Prominent among these is Rainbird, whose ST packages are ripe for conversion to the Amiga.

While the Magnetic Scrolls adventure **The Pawn** has already been a critical success for Rainbird, more eagerly awaited is the Amiga version of **Starglider.** This wire-frame 3-D shoot-'em-up was first seen on the ST, and has since been converted – with varying degrees of success – to eight-bit machines.

Judging from a preview, though, the Amiga is the machine Starglider was made for. The graphics are very similar to those of the ST; the control panel is in fact identical, ported across from the ST.

The animation, though, is around 30% faster than that of the ST, and smoother too. There's definitely a greater feeling of controlling a flying ship, and the perspective effects have been slightly enhanced to give a better impression at low levels.

The main improvements are in the area of sound. On the ST, the title music is a single long sound sample, and there is no music playing during the game. On the Amiga, each instrument sound is individually sampled from a Yamaha DX7 FM synthesizer. Tunes are then played by varying the sample pitch according to music data actually created on a Sinclair Spectrum. The effect is much more "real" than a sampled tune.

There's a great title theme, and music playing throughout the game (the Amiga's sound chip and multi-tasking capabilities allowing this without slowing down the action).

Good use is made of the Amiga's stereo sound abilities: hook the audio outputs up to your hi-fi, and firing effects will sound from the speaker on the side to which you are aiming. New sound effects include a sickening thump if you hit the ground, and much improved explosions. The speech samples ("Missile launched!") are also much improved, with greater clarity.

Another important addition is a joystick control option, not included on the original ST version. The plot remains the same; chase down and destroy the flagship of the invading Egrons, avoiding rotating missile silos, stompers, walkers and flyers, and searching out refuelling towers and computer centres. As before, the game comes complete with a novelette, control guide and poster.

This brilliant demonstration of the Amiga's advanced capabilities will be available from the middle of April at £24.95.

Appearing elsewhere on the page you'll see another demonstration of the Amiga's graphics power. Eric Graham's juggling robot was programmed on a standard 512K Amiga, using a ray tracing algorithm to generate the reflections in the glass bubbles.

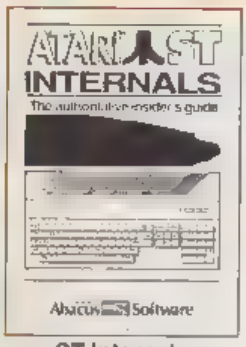
Each frame of the animation requires 64,000 light rays to be calculated. The process takes about one hour for each frame, and the results are then compressed into around 10K.

To simplify the calculations, the entire robot figure is made up of spheres, which the ray tracing algorithm can cope with most easily. The background and the glass spheres are clearly reflected as the robot juggles; the speed of the animation (which is in fact simply frame-swapping) can be controlled by the function keys, which can also freeze the action allowing you to examine single frames.

The Amiga's hold-and-modify function is used so that 4096 colours can be displayed at the same time.

While the juggling robot is a free-standing graphics demo rather than part of a commerical program, it gives some idea of the Amiga's potential for professional-quality computer animation. Let's hope that the new wave of interest sparked by the announcement of the A500 gives rise to packages which will fully exploit this impressive machine's abilities. ◀

Atari ST Reference Books from Abacus Software



ST Internals

(Formerly Anatomy of the Atari ST)
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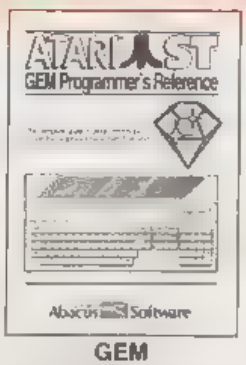
AB 450 448 pages £14.95



GEM Programmer's Reference

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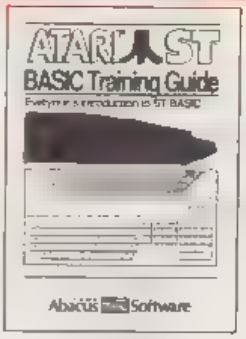

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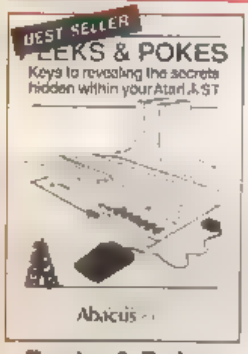

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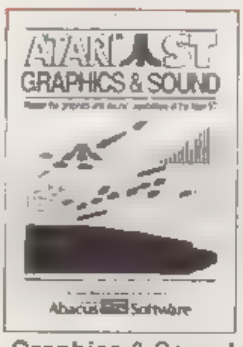

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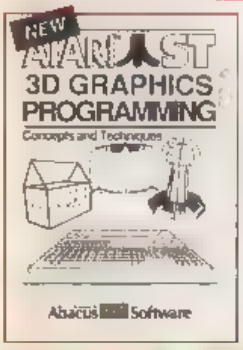

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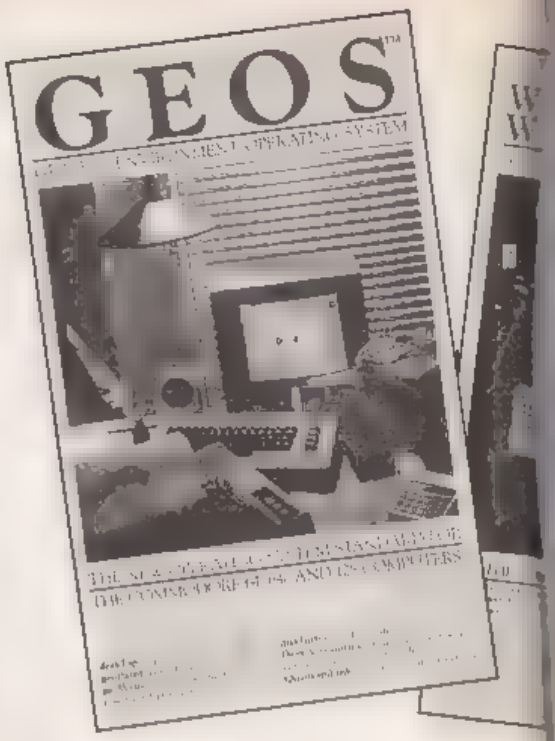
GEOS' NEW WORLD



THE WINDOW, ICON, MENU AND POINTER FRONT ENDS OF THE MACINTOSH, AMIGA AND ATARI ST ARE NOW AVAILABLE ON THE CBM 64. CHRIS JENKINS LOOKS AT THE LATEST VERSION OF **GEOS**, AND AT THE NEW WORD PROCESSING, FONT AND DESKTOP PACKAGES DESIGNED TO EXPLOIT ITS ABILITIES.

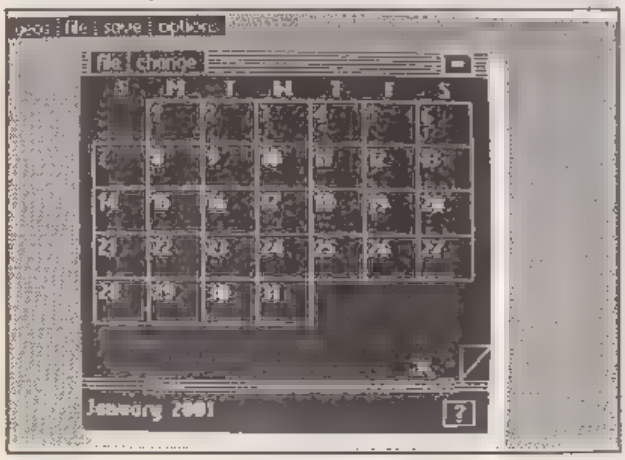
In the age of the Amiga and the Atari ST, the relatively unsophisticated Commodore 64 looks more and more out of date. **GEOS** is an attempt to bring it right up into the era of WIMP systems.

GEOS, the Graphic Environment Operating System, looked like setting new standards when it was rumoured that it was to be bundled with the 64C. This came to nothing, and despite some good reviews the package hasn't made much impression on the UK market. This may now change, with the release of several new utility packages, as well as an updated version of the main program, GEOS 1.3.

The aim of the system is to overcome the inherent difficulties of the 64's disc operating system and user interface, by putting all program functions under the control of a mouse (or joystick), controlling a pointer, selecting icons and functions from pull-down menus. The theory is fine; the problem is that the 64 does not have the operating speed or the memory size of a Macintosh, Atari ST or Amiga, and so GEOS can still be frustratingly slow in use.

The screen displays, though, look lovely: menus to the top right, files displayed by name or icon in the central window, and further icons for printer type, trash can and current disc. The original word processor running under GEOS - GeoWrite 1.3 - has certain limitations which have been addressed in the new version, **GeoWrite 2.0.** This is found on the **Writer's Workshop** package, costing £37.60.

Your first task is to make backup copies and working discs from your masters. Obviously, the 64's memory is not large enough to hold the entire operating system at one time, so you have to copy each sub-program onto a separate disc. You will still need the master, which provides an anti-piracy measure.



GeoWrite 2.0 is far more advanced than the original version, which really only allowed you to enter text, preview its screen layout, then print it in a variety of type faces. 2.0 features a command menu across the top of the screen, with a writing window which takes up most of the display. To the right of the display is the title bar and page indicator, while below the file menu is an inch ruler which allows you to change the format of the document.

Inside the writing window are the pointer and text cursor, which are used to control all the wordprocessor's functions. As you type, the writing window scrolls across and down; unlike, say, **Easy Script,** where you have to go into video mode to see the true layout of the text.

Using the command menus and keys, it's possible to insert and delete text, set tabs and margins, insert page breaks, move forward or backward one page, move to any specified page, move blocks of text, set justification, line spacing, headers and footers, insert page numbers, search and replace words or phrases, and even insert the current time anywhere in the document.

The **GeoPaint** utility is a straightforward hi-res graphics package with nothing unique to recommend it; either Wigmore House's **Artist** or Rainbird's **Art Studio** outperform it. However, GeoPaint graphics can be incorporated into GeoWrite text, although they cannot be printed in draft print mode. In high quality print mode, you have access to all the different GeoWrite fonts, plus graphics, but the printing is correspondingly slower.

The **GeoMerge** utility allows complex data files to be built up using true/false statements. In this way GeoWrite can cope with relatively simple exercises like mailing lists, or with more complex multiple-copy letters.

GeoWriters can also grab **Easy Script**, **Paper Clip**, and many other types of word processor files, and even has a facility for use with a laserprinter.

Also included on the system disc, at £49.95, are a calculator, notepad, printer drivers, preference manager and back-up routine.

FontPack 1, at £23.50, is a useful addition to GeoWrite; it provides twenty new fonts ranging from 10 to 24 point size. GEOS can handle up to eight fonts at a time, but you can of course store many more on a disc. Although some are suitable only for headings (since they are only available in 24 point), the selection is excellent and even includes a set of mathematical symbols. The manual provided gives examples of each style, and was itself produced using GeoWrite and Fontpack 1.

Deskpack 1, at £26.50, is a more substantial package, featuring three useful applications and one turkey.

The **Graphics Grabber** is one of the most interesting applications, allowing you to load and edit graphics from **Print Shop** (distributed over here by Precision), **News Room** (Ariolasoft), and **PrintMaster** (never heard of it). These can then be incorporated into your GeoWrite and GeoPaint documents.

The **Icon Editor** is just what you need to convert all your old disc files to GEOS standard. It allows you to edit old icons, or create new ones, and append them to your discs. The routine is very much like a sprite editor, simplified in that it does not deal with colours.

The **Calendar** will get you organised up to the year 9999 - by which time I imagine even the CBM 64 will be obsolete. Each day of the month is represented by a square which you can enter an asterisk, which opens a file in the datebook. Similar to the **DeskTop** notebook, this allows you to enter notes for each appointment. You can then scroll through your dates, or click on the question mark icon to reveal a list of dates flagged.

The last utility is in fact a game, **Las Vegas Blackjack**. Why desktop utility packages traditionally include something of this kind, I don't know; but I wish they wouldn't bother.

Also available is **GeoDex**, at £26.50, a card index system which can be used as a source file for GeoMerge. This is likely to be superseded shortly by a more sophisticated package, **GeoFile**.

Also on the way is **GeoCalc**, a full-featured spreadsheet, more font and graphics packages, and an 80-column C128 version of GEOS.

Once you have recovered from the culture shock of producing all the necessary working discs, upgrading your disc files and learning to use the desktop system on the 64, you still face some problems. Although GEOS is obviously a mouse system, the Commodore 1350 and 1351 mice are not yet available, and the system does not work with the mouse provided with the Commodore Connoisseur's Compendium, so you are reduced to using a joystick or KoalaPad. This is no fun at all.

Secondly, GEOS is very American; zip codes in the card files, clock speeds which mean that the alarm clock has fifty seconds in every minute, American spellings everywhere. There are apparently no plans to anglicise the package.

Apart from that, GEOS works, and the release of the new packages indicates that support for the system will be continuing. Unless you intend to buy an Amiga – and even if you do, but you intend to keep your 64 - GEOS may be the best way to drag your 64 into the '90s. ◀

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ART FOR WIMPS

CHRIS JENKINS LOOKS AT THE NEW ADVANCED VERSION OF RAINBIRD'S SUCCESSFUL GRAPHICS PACKAGE FOR THE 64, ART STUDIO, AND FINDS LOTS OF NEW FACILITIES THROUGH THE SQUARE WINDOW . . .

Rainbird's **Advanced Art Studio** is the latest version of a graphics package which has met with considerable critical success on a wide range of eight-bit machines.

The original package was, in its time, probably the best overall painting program for the 64. Although Wigmore House's **Artist 64** offered more special effects, and other packages might have been more straightforward to use, Art Studio's menu/window system and choice of controllers made it the first choice for many micro artists.

The Advanced version retains many of the features of the original, while adding important functions in the fields of colour handling, control options, picture merging and font definition.

The package comes complete with two cassettes or discs, and two handbooks, because a copy of the original **Art Studio** is included with it. This is important, because the two packages operate in different graphics modes. The original version operates in hi-res, making it usually necessary to draw in mono, then add colours in a separate operation. The resultant colour attribute problems – caused by the hardware rather than the software – were one of the drawbacks of working with Art Studio.

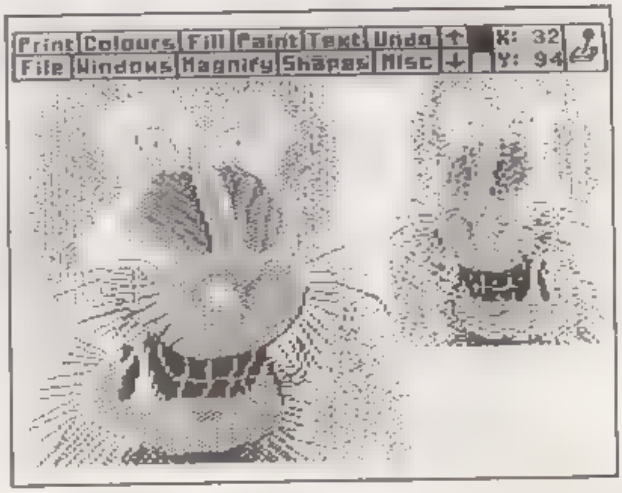
The new version operates in multi-colour mode. While this does not give such high resolution, it cuts down colour attribute problems to a minimum, making it practical to draw with a full palette. The Advanced package, though, includes a conversion program which transfers hi-res pictures to multi-colour mode; hence the inclusion of both programs in the package.

The Advanced Art Studio's format is pretty familiar. Along the top of the screen is a series of menu lables and icons. Moving the cursor over the label and clicking brings up a sub-menu, in which options are highlighted. Incidentally, control can be by keyboard, Datex mouse, joystick or Koala Pad.

Let's skip through some of the menu options. Print allows any of 48 sizes of screen dumps to be produced on any Commodore or Centronics printer capable of bit-image printing. Density can be varied too, as can orientation and justification.

Colours brings up a display of the full 16-colour palette. On this sub-menu you can set colour priorities in any order, so that, for instance, if you are drawing in blue, it will paint over red but will not paint over yellow. This makes it possible to do things like painting in a background after the foreground, and can apply to any operation including cut-and-paste, fills and so on. Current ink, paper and border colours are set here, too.

Another new feature is the ability to exclude any colour from any operation, so, for instance, you can erase a defined window, but leave any chosen colour in it untouched.



The fill facilities have been improved by the addition of a default set of twelve multi-colour fills to replace the original mono fills. These are used in the normal way – although due to the way AAS stores attributes separately, fills are pretty slow. There's a fill pattern editor grid with useful clear, scroll, invert and other functions; and up to 12 patterns at a time can be saved to disc.

In the same way, although there are sixteen default pen shapes, you can also define your own pens and save them.

From the paint menu brushes of any shape and colour pattern can be defined too, the default set consisting of segments cut from the default patterns. There's also a choice of airbrushes, which spray on more pixels the longer you hold them in place.

The text facilities have also been improved, with nine sizes, variable spacing, bold, italic, variable orientation, a full font editor, and again the ability to save fonts to disc. The finished package will come supplied with several fonts already defined.

There's a powerful zoom mode, with three levels of magnification, an optional drawing grid, and an "intelligent" feature which tries to choose the best combination of pixel colours should you overshoot the number of colours allowed in one character square.

The shapes menu brings up the usual selection of rectangles, circles, triangles, lines, rays, dots and so on.

Most interesting perhaps is the Windows menu. While all the usual facilities for cutting out, pasting down, and replacing areas of the drawing are provided, there are also some novelties. Windows can be inverted, turned on their side, or remapped at different sizes; they can also be saved to disc, making it possible to build up a whole library of "fuzzy felt" pieces which can be pulled off the disc and stuck down anywhere on the picture at a later date.

Lots of minor points contribute to making AAS easier to use; the continuous cursor coordinate display; the choice of cursor shapes and functions; the ability to save set-ups containing your control parameters, fonts, patterns and brushes; the full undo function; and the Screenloader utility which allows AAS pictures to be incorporated into your own programs.

Rainbird's Advanced Art Studio strikes me as the ideal combination of user-friendliness and sophistication, producing the best possible performance from the Commodore 64. ◀

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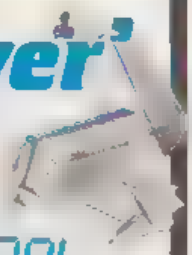

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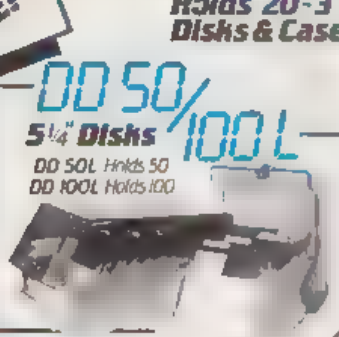

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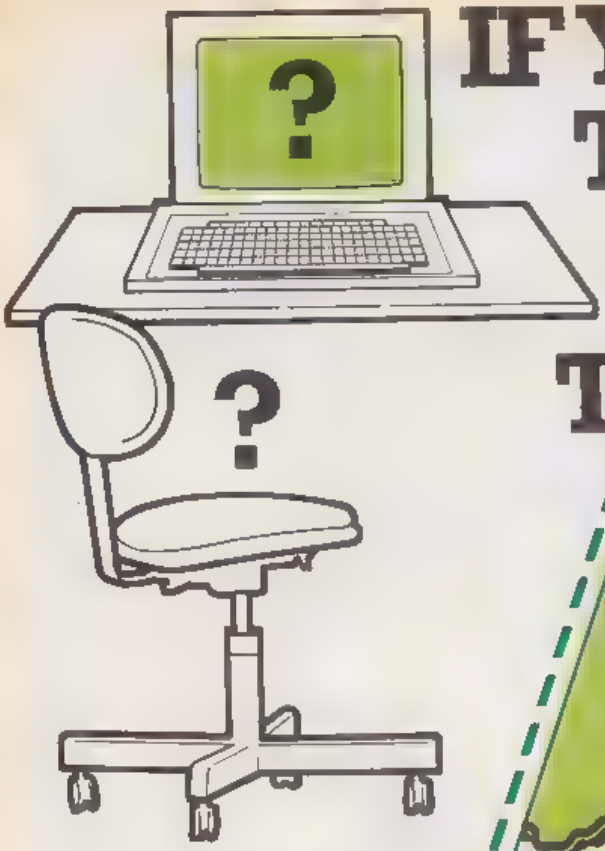

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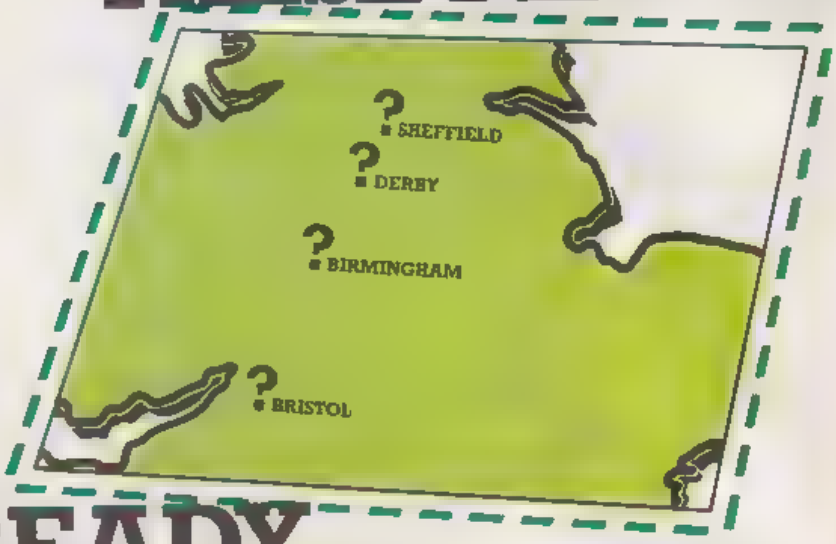

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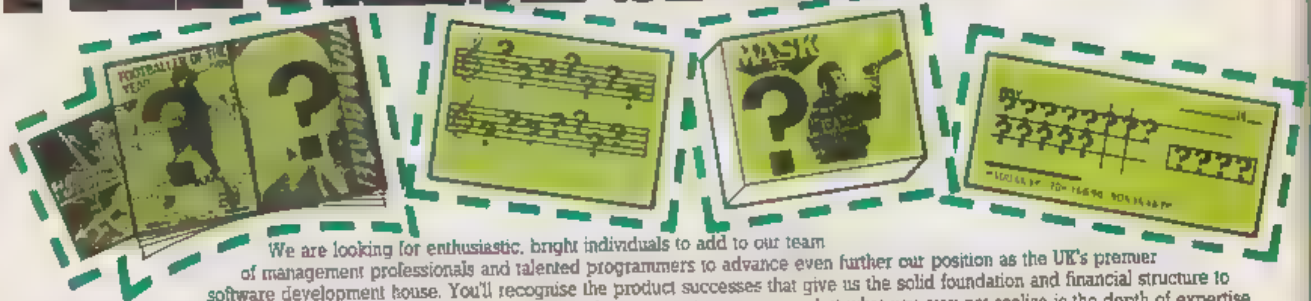

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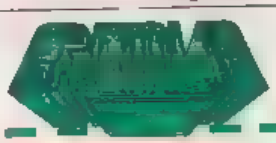

THERE'S ALWAYS SPACE FOR TALENT IN THE GREMLIN TEAM!

Dallas – the chess opera

Martin Bryant, author of Colossus Chess, reports on the World Microcomputer Chess Championships in Dallas

The 6th World Microcomputer Chess Championships took place in the stunning Dallas Informart, Texas, from the 1st to the 6th November last year. The occasion was the rejoining of two major computer societies (the ACM and IEEE) in their renowned autumn joint computer conference series.

Despite the excellent facilities, Dallas is not known as a chess centre, and comparisons were made with the 5th Championship in the World Trade Centre, Amsterdam, which is recognised as a model of a well-organised event of this type.

As a spectator event the 6th championship rated poorly, not only because the venue was moved from a readily accessible (though small) space off the main lobby to an area that was out of sight and out of mind of the conference attendees, but also because it lacked vendors' exhibits or a Grand Master simultaneous match, like GM Sosonko's in Amsterdam.

Of course there were good reasons why more was not possible, and not the least was that half the participants were also actively involved in the 17th North American Computer Chess Championship (the longest running event in computer chess) which was taking place in the nearby Anatole Hotel seemingly only a short one kilometre walk away, but a major headache for competitors toting heavy computer equipment. The competitors are listed in the box.

Despite last minute clarifications on the entry requirements, which undermined the organisers' plans, and despite the paranoia of some participants and the way they filed the usual bunch of complaints/protests, the event proceeded with the games speaking louder than the harsh words exchanged.

Such nervousness is common in micro events where millions in sales can rest on the result of the tournament. However, the complaints were dealt with in a serious and conscientious way.

Program	Programmer	Publisher
Mephisto (68020)	Richard Land	Hedner & Glaser
Fidelity (68020)	D & K Spracklen	Fidelity Electronics
Cyrus (68020)	David Levy	Intelligent Software
Recom (6502)	Ed Schroder	Merel
Monster (80386)	J Middlecoff	Cypress Software
Kempelen (68000)	H Gyula	Sierra Software

The same results reflected both the intrinsic speed of the hardware and the manufacturer's experience with the unit. Each manufacturer was allowed up to three entries (nominally identical) but they would not play each other because of "fixed" games. This gives an unfair advantage over the single entrant as you have three times the chance of winning and also the pairing system is affected so that stronger programs have to be paired against weaker ones as they can't play their "brothers".

The reason for allowing multiple entries is just that a hefty entry fee is charged to cover tournament expenses and the big manufacturers are made to cover this. Thus, although there were 14 entries, only six were unique.

With competitors from Germany, Hungary, Holland, UK and USA the event, not surprisingly, got off to a late start on Halloween night. Quickly, the top contenders, Fidelity and Mephisto, demonstrated their superiority by winning all three of their games. After five rounds, Mephisto 3 had won all its games, and Fidelity A to C held a narrow lead over the rest.

After six rounds though, Mephisto 3 couldn't be caught, but Recom denied Mephisto the 100% score by beating it in the last round. Finally, then, Mephisto programs came 1st, 3rd and 5th, with Fidelity 2nd and 4th and Recom 6th.

One thing that did show up is the almost impossible task new programs have against the old hands. Here the Kempelen programmer, with his Atari ST system made no real progress against the professionals, although it had some close games.

The graphics were good, but 10 weeks is not long enough to rewrite a chess program to world level.

We want your programs!!

Yes, this is your chance to get rich and famous. Well, famous anyway, as *Popular Computing Weekly* is looking for contributions to the Programming pages.

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Raster Scroller

Neil Raine

Here we go with the second and final part of the listing. Use the following pokes to manipulate the scrolling area.

Poke 50054, (1=left, 2=right) scrolling direction

Poke 50040, (1-8) scrolling speed

Poke 50052, (1-16) multicolour 1

Poke 50053, (1-16) multicolour 2

Poke 50050, (1-16) border bottom colour

Poke 50051, (1-16) border middle colour

Poke 50036, (1-180) position of top raster

Poke 50037, (1-193) position of bottom raster

It is important that the top raster has a lower value than the bottom raster.

Poke 50048, (2-12) character pointer for scrolling set

Poke 50049, (2-12) character pointer for non-scrolling set

To obtain the pointer value, divide the address of the character set by 1024. Use four for the Rom character sets.

The following *Sys* calls are also available.

Sys 49920 fills the scrolling area with character 32.

Sys 49972 stops scrolling and preserves its status.

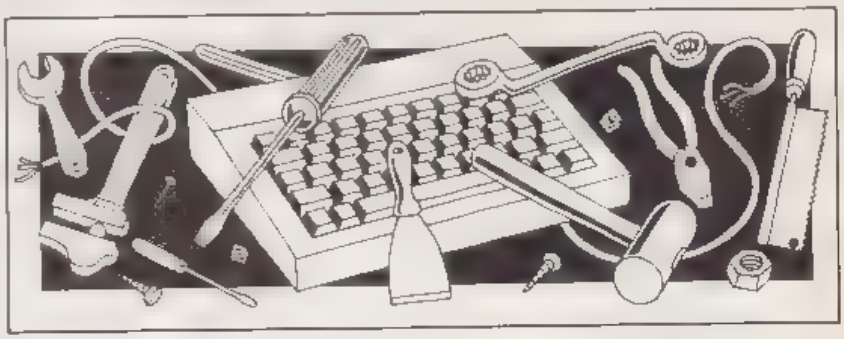
Sys 50011 restarts the scrolling.

```
590 DATA 185,255,160,141,40,60,185,254
600 DATA 161,141,80,60,185,253,162,141
610 DATA 120,60,185,252,163,141,160,60
620 DATA 185,251,164,141,200,60,185,250
630 DATA 165,141,240,60,185,249,166,141
640 DATA 24,61,185,248,167,141,64,61
650 DATA 185,247,168,141,104,61,185,246
660 DATA 169,141,144,61,185,245,170,141
670 DATA 184,61,185,244,171,141,224,61
680 DATA 185,243,172,141,8,62,185,242
690 DATA 173,141,48,62,185,241,174,141
700 DATA 88,62,185,240,175,141,128,62
710 DATA 185,239,176,141,168,62,165,1
720 DATA 9,1,133,1,96,173,118,195
730 DATA 201,209,240,50,173,118,195,201
740 DATA 208,240,47,173,118,195,201,210
750 DATA 240,36,173,118,195,201,211,240
760 DATA 29,173,118,195,201,212,240,22
770 DATA 173,118,195,201,213,240,15,173
780 DATA 118,195,201,214,240,8,173,118
790 DATA 195,201,215,240,1,96,206,118
800 DATA 195,96,160,0,185,1,60,153
810 DATA 0,60,185,241,60,153,240,60
820 DATA 185,225,61,153,224,61,200,192
830 DATA 240,208,233,173,118,195,41,248
840 DATA 24,105,7,141,118,195,238,122
850 DATA 195,238,121,195,165,1,41,254
860 DATA 133,1,172,122,195,185,0,160
870 DATA 141,39,60,185,255,160,141,79
880 DATA 60,185,254,161,141,119,60,185
890 DATA 253,162,141,159,60,185,252,163
900 DATA 141,199,60,185,251,164,141,239
910 DATA 60,185,250,165,141,23,61,185
920 DATA 249,166,141,63,61,185,248,167
930 DATA 141,103,61,185,247,168,141,143
940 DATA 61,185,246,169,141,183,61,185
950 DATA 245,170,141,223,61,185,244,171
960 DATA 141,7,62,185,243,172,141,47
970 DATA 62,185,242,173,141,87,62,185
980 DATA 241,174,141,127,62,185,240,175
990 DATA 141,167,62,185,239,176,141,207
1000 DATA 62,165,1,9,1,133,1,96
1010 DATA 173,134,195,141,137,195,169,■
1020 DATA 141,134,195,141,125,195,169,0
1030 DATA 133,2,169,60,133,3,160,0
1040 DATA 24,173,126,195,145,2,200,208
1050 DATA 248,230,3,238,125,195,173,125
1060 DATA 195,201,3,208,233,173,137,195
1070 DATA 141,134,195,96,173,134,195,141
1080 DATA 138,195,120,173,120,195,141,141
1090 DATA 195,173,116,195,141,139,195,173
1100 DATA 117,195,141,140,195,169,0,141
1110 DATA 116,195,141,134,195,169,30,141
1120 DATA 117,195,96,173,139,195,141,116
1130 DATA 195,173,140,195,141,117,195,173
1140 DATA 141,195,141,120,195,173,138,195
1150 DATA 141,134,195,96,48,193,0,0
1160 DATA 1,0,39,0,0,0,0,32,0
1170 DATA 4,6,0,11,11,12,2,0
1180 DATA 0,0,0,0,0,0,0,256

READY.
```


Icon Toolkit

Simon T Goodwin



Icon Toolkit provides eight new commands for Amstrad Basic that enable the user to create (or simulate) a WIMP (windows, icons, menus, pointer) environment from Basic. Also included is an Icon Designer program to enable the user to design icons for use from Basic. There follows a brief rundown of the commands followed by a description of how firstly icons and secondly menus can be set up from Basic.

Icon Commands

:Source, base Sets the base address *address* from which the icon data is to be taken. One icon takes 64 bytes.

:Icon,x,y,number Places an icon on the screen. When designing icons it is best to make notes of the order in which your icons are stored. In the example memo program

5 icons (numbers 1 to 5) are used.

:Pointer,x,y, colour,@a% Places a pointer on screen at x,y in a certain colour. The pointer can be moved around the screen with the cursor keys. When the COPY key is pressed the variable a% returns the number of the icon selected.

Window/Mouse Commands

:Tcoord,x,y,@a% Returns the screen address equivalent of text co-ords x,y

:Gcoord,x,y,@a% Returns the screen address equivalent of graphics co-ords x,y

:Cut screen address,store address,width, depth

:Paste screen address,store address,width depth

These commands store and replace respectively a section of the screen starting at the given address in the store address. The dimensions of the screen section must be given (in bytes not pixels).

:Fwindow,screen address,width,depth, mask

Fills a specified section of the screen, starting at the given address with a pixel mask (1 to 255). The dimensions of section must be given (again in bytes, not pixels).

Examples

To use the icon commands:

1. Design your icons with the designer. If you require more than 5 icons you can merge your designer files into memory at 320 byte intervals. (320 bytes = 5 x 64 bytes).
2. Set the *:Source* command to the base address of the data.
3. Place your icons on screen with the *:Icon* command.
4. Place the pointer on the screen with the *:Pointer* command.
5. Use the *On a%* . . . command to assign sub-routines to icons.

For example:

```
10  memory 39999
20  load "data",40000
30  :SOURCE,40000
35  print chr$(23);chr$(1)1)
40  p%=1
50  for n%=100 to 500 step 100
60  :ICON,n%,300,p%
70  p%=p%+1
80  next
90  a%=0=:POINTER,50,300,1,@a%
100 on a% gosub 200,300,400,
    500,600
200 rem SUBROUTINES . . .
300 . . . .
400 . . . .
500 . . . .
600 . . . .
```

To use the window/menu commands:

1. Use the *Tcoord/Gcoord* commands to find the required location for a window.
2. Store the present contents of that location with the *:Cut* command.
3. Fill your window with a background using the *:Fwindow* command.
4. Set up menu of print message in window using Basic.
5. When finished replace the old screen contents in place of the window.

For example:

```
10 a%=0=:TCOORD,10,10,@a%
20 :CUT,a%,16384,40,100
30 :FWINDOW,a%,40,100,240
40 paper 1=pen 0
50 locate 12,11=print "WINDOW"
60 locate 12,15=print "PRESS A KEY"
70 while inkey$="":wend
80 :PASTE,a%,16384,40,100
90 paper 0=pen 1
```

As this is a three week production more listings follow.

```
10 REM ..............................
20 REM .. ICON TOOLKIT Basic Loader ..
30 REM ..                            ..
40 REM ..      By Simon.T.Goodwin    ..
50 REM ..............................
60 MEMORY 40999
70 count=0
80 FOR n=41000 TO 42370
90 READ a$
100 POKE n,VAL("&"+a$)
110 count=count+VAL("&"+a$)
120 NEXT
130 IF count<>95046 THEN PRINT "Data err
or":END
140 CALL 41023
150 DATA 00,00,00,00,00,00,00,00
160 DATA 00,00,00,00,00,00,00,00
170 DATA 00,10,27,00,00,00,00,01
180 DATA 49,A0,21,38,A0,CD,D1,BC
190 DATA C9,63,A0,C3,AA,A1,C3,A6
200 DATA A0,C3,A0,A1,C3,E1,A2,C3
210 DATA 0B,A3,C3,4B,A3,C3,35,A3
220 DATA C3,8F,A0,49,43,4F,CE,50
230 DATA 4F,49,4E,54,45,D2,53,4F
240 DATA 55,52,43,C5,43,55,D4,50
250 DATA 41,53,54,C5,54,43,4F,4F
260 DATA 52,C4,47,43,4F,4F,52,C4
270 DATA 46,57,49,4E,44,4F,D7,DD
280 DATA 6E,06,DD,66,07,DD,4E,02
290 DATA DD,46,04,DD,7E,00,32,A5
300 DATA A0,CD,62,A3,C9,00,DD,5E
310 DATA 06,DD,56,07,DD,6E,04,DD
320 DATA 66,05,DD,7E,02,DD,4E,00
330 DATA DD,46,01,C5,ED,53,2B,A0
340 DATA 22,2A,A0,32,34,A0,CD,E1
350 DATA BB,32,35,A0,CD,7F,A1,3E
360 DATA 00,32,36,A0,CD,F6,A0,3E
370 DATA 09,CD,1E,BB,C4,FC,A1,3A
380 DATA 36,A0,FE,00,20,07,3E,42
390 DATA CD,1E,BB,28,E7,C1,3A,36
400 DATA A0,02,CD,7F,A1,C9,3E,01
410 DATA CD,1E,BB,C4,17,A1,3E,0B
420 DATA CD,1E,BB,C4,32,A1,3E,00
430 DATA CD,1E,BB,C4,4D,A1,3E,02
440 DATA CD,1E,BB,C4,66,A1,C9,21
450 DATA 6E,02,ED,4B,2B,A0,ED,
460 DATA 0B,CD,7F,A1,ED,5B,2B,A0
470 DATA 13,13,ED,53,2B,A0,CD,7F
480 DATA A1,C9,21,02,00,ED,4B,2B
490 DATA A0,ED,42,D0,CD,7F,A1,ED
500 DATA 5B,2B,A0,1B,1B,ED,53,2B
510 DATA A0,CD,7F,A1,C9,21,BC,01
520 DATA ED,4B,2A,A0,ED,42,D8,CD
```


Spectrum Rom Calls

Russell Thomas

> *"This article will show you how you may 'borrow' routines from the Spectrum Rom to improve your programs"*

In this three part article I hope to show you how you may "borrow" routines from the Spectrum Rom to both improve the look of your own programs and, if you wish, to develop your own Operating Systems complete with error messages and so forth. I have given the routines names of their own so that it will be easier to refer to them. To get us started let's take a look at an alternative to the *Pause* command as used when waiting for a key to be pressed.

Wait key

```
100 PRINT #0;"ANY MESSAGE.":
PAUSE 0: . . .
```

continued on page 46 ▶

Programming: Spectrum

◀ continued from page 45

Pretty standard stuff I think you'll agree. So what's the problem? The problem lies in the method adopted to effect a pause on the Spectrum. (The culprit is the Z80 *Halt* instruction). In a nutshell, the screen is disturbed slightly for the duration of the pause resulting in fine, grainy lines traversing the screen. Solution . . .

```
100 PRINT "ANY MESSAGE.";USR
5598:
```

1) Notice only one command to effect both message printing and pause.
2) This is the same as the method used by Sinclair to print the copyright message etc.
3) The message can be empty if you like, eg:

```
100 INPUT USR 5598:
```

Editor

The following Rom call will allow you to invoke the Editor from within a Basic program (128 users, this will put you in 48K mode). This can be used to stop a program without using a Stop statement and, consequently, no Stop report at the bottom of the screen! To call the Editor enter the following:

```
100 RANDOMIZE USR 4777
```

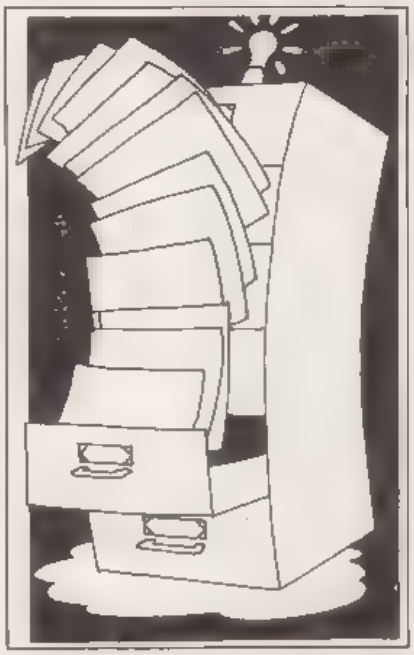
Lower Cls

This routine can be used to clear the lower part of the display (where the reports are printed). It (normally) has no effect on the rest of the screen. To use it enter:

```
100 RANDOMIZE USR 3438
```

The routine can be extended to clear a greater portion of the screen by first *Poking* the system variable DF SZ with the number of lines you wish to clear.

```
100 POKE 23659,12: RANDOMIZE USR
```



```
3438
```

or even,

```
100 PAPER 2: POKE 23659,
12:RANDOMIZE USR 3438
```

which will clear it in a different colour without upsetting the rest of the screen!

Autolist

This routine is really an alternative to the Editor call mentioned earlier. It will allow you to stop a program and as the name suggests, give an automatic listing of the program as typing *List* causes the *scroll?* message to appear. You will then be left in the Editor again. More about this routine later. To use it enter:

```
100 RANDOMIZE USR 4770
```

Scroll

The old ZX81 *Scroll* command is still there! Calling this routine will scroll the screen up by one line. Of course, you can stick it in a loop if you wish.

```
100 RANDOMIZE USR 3190
```

Double byte Pokes

As you are probably aware, there is no *Dpoke* command on the Spectrum. *Dpoke* is a method of storing a whole number (whose value can exceed 255) in two consecutive memory locations. Let us say we wish to *Dpoke* 12345 into the two locations starting at 65530.

```
RANDOMIZE 12345: POKE 65530,
PEEK 23670:POKE 65531,PEEK 23671
```

or to see the values,

```
RANDOMIZE 12345: PRINT "LO=";
PEEK 23670, "HI=";PEEK 23671
```

Free

Yes, there is a *Free* command inside the old beast! To use it type:

```
PRINT 65536-USR 7962;" BYTES
FREE."
```

If an 'OUT OF MEMORY" report appears, then you will have less than 80 bytes of memory left.

Tune in next week for more Spectrum Rom Calls.

Programming QL

Menu

Seb Tomasin

This procedure was designed as an aid to the development of any program which may need at one stage the use of a menu of some sort. The list of options should be stored as part of the program in a data list. The line number which has the data in it should be entered to the procedure through the parameter *datalist_no*, and the title for the on screen menu should be stored in *title$*

The QL must be in mode 4 and the paper for window #1 should be zero black. The option number which is selected is stored in the variable *Dnum*. The option name is stored in the variable *Str$(Dnum)*.

```
10000 REMark ************************************
10010 DEFine PROCedure MENU(datalist_no,title$)
10020 REMark ************************************
10030 REMark This global procedure gives an on-screen menu which looks for the menu 'options in a data list. The variable
'title$' is                the title for the menu. The option selected is returned in the variable 'Str$(Dnum)'
10040 REMark ** Clear Screen **
10050 CLS:CLS #0
10060 CSIZE 2,1:AT 0,0:CENTRE4 title$:CSIZE 2,0
10070 CSIZE #0,1,0
10080 REMark ** Instructions **
10090 INK #0,4:PRINT #0,'Use the ';:INK #0,7:PRINT #0;'} ? ';:INK #0,4:PRINT #0;'keys to select option'\'Press the
';:STRIP #0,7:INK #0, 0:PRINT #0;'   SPACE BAR   ';:STRIP #0,0:INK #0,4:PRINT #0;' to confirm your choice':INK #0,7
10100 REMark ** Print cursor & select option **
10110 CSIZE #0,0,0
```

continued on page 49 ▶

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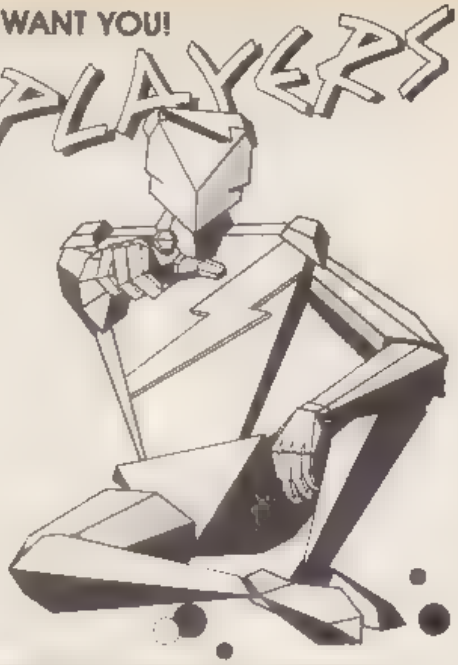

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◀ continued from page 46

```
10120 Dnum=1:Snum=5
10130 AT Snum,0
10140 Dimstring:limit=n
10150 RESTORE datalist_no
10160 REPeat LOOP
10170 IF EOF THEN EXIT LOOP
10180 READ Opt$
10190 IF Opt$=='EOF' THEN EXIT LOOP
10200 CENTRE4 Opt$
10210 END REPeat LOOP
10220 REPeat LOOP
10230 AT Snum,8:PRINT '=':AT Snum,27:PRINT '(':STRIP 4:INK 0:AT Snum,10:PRINT  ':STRIP 0:INK 0:OVER 1:AT Snum,0:CENTRE4
Str$(Dnum):OVER 0:STRIP 0:INK 4
10240 Key=CODE(INKEY$(-1))
10250 AT Snum,0:CENTRE4 Str$(Dnum)
10260 SELect ON Key
10270 =208:IF Dnum<1 THEN Dnum=Dnum-1:Snum=Snum-1:ELSE Dnum=limit:Snum=Dnum+4
10280 =216:IF Dnum<limit THEN Dnum=Dnum+1:Snum=Snum+1:ELSE Dnum=1:Snum=5
10290 =32:CSIZE 0,0:CSIZE 0,0:GO TO 10530:REMark *** JUMP TO END OF PROC ***
10300 END SELect
10310 END REPeat LOOP
10320 REMark ************************
10330 DEFine PROCedure CENTRE4(tex$)
10340 REMark ************************
10350 LOCal a,b,c
10360 a=(LEN(tex$)/2)+1
10370 b=(37/2)-a
10380 PRINT TO b;tex$;FILL$(' ',10)
10390 END DEFine
10400 DEFine PROCedure Dimstring
10410 RESTORE datalist_no
10420 FOR n=1 TO
10430 READ a$
10440 IF a$=='EOF' THEN LET n=n-1:EXIT n
10450 IF EOF THEN EXIT n
10460 END FOR n
10470 DIM Str$(n,17)
10480 RESTORE datalist_no
10490 FOR a=1 TO n
10500 READ Str$(a)
10510 END FOR a
10520 END DEFine Dimstring
10530 CLS:CLS #0
10540 END DEFine MENU
```


Software Sprite

Stephen C Underwood

Unbeknown to the public at large, the ST has a built in sprite routine that can easily be used by the machine code programmer. The sprites in question are not true sprites, since they are generated by software rather than by hardware, but they are still a powerful tool for the creation of your own arcade game.

The sprites are 16 by 16 pixels in size, and two routines are supplied, one to draw them and one to erase them. The way the routines work, the background is saved in memory before a sprite is drawn at that spot, and replaced afterwards by the original background when the sprite moves on. Unfortunately, both movement of the sprites, and detection of a 'collision' must be dealt with by your own software routines. Nonetheless, these routines are extremely fast.

continued on page 50 ▶

◀ continued from page 49

The routines are part of what is grandly known as the 'Line A routines', and use 14 'illegal' machine code instructions to CALL the routines. For the technically minded, when the error occurs, an exception vector is invoked, and the routine it points to carried out. This checks for the error number and carries out the appropriate routine.

As with most routines, to use the sprites you must first initialise the system. This is done simply by the illegal bytes $A000 and nothing more need be said about this. To draw a sprite, a data block has first to be set up, some registers used as pointers, and the routine then called. The data bock has the following format:

DC.W X Offset
DC.W Y Offset
DC.W Format (0=VDI 1=XOR)
DC.W Background Colour
DC.W Foreground Colour
DC.W Background Pattern Of Top Line Of Sprite
DC.W Foreground Pattern Of First Line Of Sprite

The last two lines are repeated 15 times with the different patterns that make up the sixteen lines of your sprite.

The format decides how the Sprite will combine (or not as the case may be) with what is already on screen:

Foreground Value	Background Value	Bit Displayed
		VDI Format
■	0	Background screen colour
0	1	Data block background colour
1	0	Data block foreground colour
1	1	Data block foreground colour
		XOR Format
■	0	Background screen colour
0	1	Data block background colour
1	0	Screen pixel XORed with Data foreground bit
1	1	Data block foreground colour

Having set up your data block, you must now set some registers before Calling the sprite draw routine. The registers must be set as follows:

D0 – X Coordinate
D1 – Y Coordinate
A0 – Points to the start of the data block
A2 – Points to the beginning of an area of memory where the screen background can be saved before drawing the sprite. (Each background requires 74 bytes in monochrome display, and 266 bytes in low resolution colour mode.

To *Call* the sprite simply use the illegal instruction $A00D after setting the registers and creating the data block.

Undrawing a sprite is much easier, but relies on the fact that one has already been drawn! Simply use A2 to point to the beginning of the area of memory that the screen background was saved to before drawing the sprite on the screen, and use the illegal instruction $A00C.

Needless to say, setting up one sprite can take some time, but the same sprite is drawn many times, and only the *X,Y* and saving location of the screen background vary for each sprite. Thus, considerable time savings can then be made. However, beware, when the two sprite routines are called, the registers are altered when the routines return so the values must be reset each time.

Since an example is the best explanation of all, here is a program that places a Space invader on the screen in high resolution monochrome mode.

```
DC.W $A000          ;INITIALISE

MOVE.L#100,D0       ;X VALUE

MOVE.L#100,D1       ;Y VALUE

MOVE.L#DATA,A0      ;POINTER TO DATA BLOCK

MOVE.L#BUFFER,A2    ;BUFFER TO STORE BACKGROUND

DC.W $A00D          ;DRAW SPRITE

RTS                 ;END ROUTINE
```

```
DATA:               ;START OF DATA BLOCK

DC.W 0              ;X OFFSET

DC.W 0              ;Y OFFSET

DC.W 0              ;FORMAT

DC.W 0              ;BACKGROUND COLOUR

DC.W 1              ;FOREGROUND COLOUR

                    ;DEFINITION OF SPACE
                     INVADER SHAPE

    DC.W $FFFF

    DC.W %0000000110000000

    DC.W $FFFF

    DC.W %0000000110000000

    DC.W $FFFF

    DC.W %1111111111111111

    DC.W $FFFF

    DC.W %1111111111111111

    DC.W $FFFF

    DC.W %1111111111111111

    DC.W $FFFF

    DC.W %1110001111000111

    DC.W $FFFF

    DC.W %1110001111000111

    DC.W $FFFF

    DC.W %1111111111111111

    DC.W $FFFF

    DC.W %1111111111111111

    DC.W $FFFF

    DC.W %0001111001111000

    DC.W $FFFF

    DC.W %0001111001111000

    DC.W $FFFF

    DC.W %0001111001111000

    DC.W $FFFF

    DC.W %1110000000000111

    DC.W $FFFF

    DC.W %1110000000000111

    DC.W $FFFF

    DC.W %1110000000000111

    BUFFER:
    ;START OF AREA
    TO STORE BACKGROUND
```

The routine to UNDRAW this SPRITE would be as follows:-

```
    MOVE.L#BUFFER,A2

    DC.W $A00C

    RTS
```

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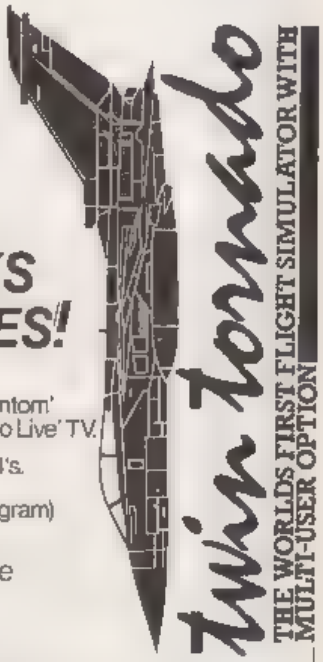

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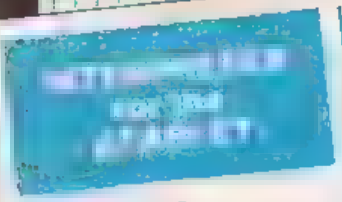

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3	1·305	1·025
4	1·55	1·01
5	1·505	1·085
6	2·575	1·765
7	4·11	2·845
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Screen Store

A Campbell Black

This routine for the Spectrum 48K and 48K+ with Interface One allows you to store a copy of the screen in memory and recall it later. *Poke* will store the screen while *Peek* recalls.

To use the routine, *Clear 58389* then load the code and enter *Randomize Usr 58390* to activate.

```
 15 CLEAR 58389
 20 LET t=0
 30 FOR n=58390 TO 58454
 40 READ d
 50 POKE n,d: LET t=t+d
 60 NEXT n
 70 IF t<>7455 THEN  PRINT "err
or in data": STOP
 80 SAVE *"m";1:"extendcode"COD
E 58390,65
 90 RANDOMIZE USR 58390: PRINT
"NEW COMMANDS ACTIVE"
 92 PRINT : PRINT "POKE stores
copy of screen in   memory "
 94 PRINT : PRINT "PEEK recalls
 stored screen"
 95 STOP
100 DATA 207,49,33,31,228,34,
183,92,201,215,24,0,254,244,202,
47,228,254,190,202,67,228,195,
240,1
110 DATA 215,32,0,205,183,5,33,
0,64,17,87,228,1,0,27,237,176,
195,193,5,215,32,0,205,183
120 DATA 5,33,87,228,17,0,64,1,
0,27,237,176,195,193,5
```

Screen Decoder

Michael Bromwich

This program for the BBC B, Master or Compact allows you to include a *Mode 7* screen in a Basic program. It takes a screen file and converts it into an Ascii file to be merged with your program.

```
 40 DIM S$(23)
 50 CLS
 60 FOR O%=1 TO 0
 70   VDU141
 80   PRINT"Teletext screen decoder"
 90 NEXT
100 PRINT
110 INPUT"Input filename.."FI$
120 INPUT"Output filename."FO$
130 INPUT"Start line....."SL%
140 INPUT"Step..........."ST%
150 PRINT
160 PRINT"Loading screen"
170 ch=OPENIN(FI$)
180 FOR Y%=0 TO 23
190   PRINT" ";~Y%;"";
200   FOR X%=0 TO 39
210     B%=BGET#ch
220     IF B%=127 OR B%<32 THEN B%=ASC("?")
230     S$(Y%)=S$(Y%)+CHR$(B%)
240     IF B%=34 THEN S$(Y%)=S$(Y%)+CHR$(B%)
250   NEXT X%
260 NEXT Y%
270 CLOSE#ch
280 ch=OPENOUT(FO$)
290 LI%=SL%
300 PRINT
310 PRINT"Saving screen"
320 FOR Y%=0 TO 23
330   PRINT" ";~Y%;"";
340   ST$=STR$(LI%)+" PRINT""+S$(Y%)+""";"
350   PROCsend_string(ST$)
360   LI%=LI%+ST%
370 NEXT Y%
380 CLOSE#0
390 PRINT'"Use '*EXEC "+FO$+"' to load."
400 END
410 DEF PROCsend_string(A$)
420 FOR A%=1 TO LEN(A$)
430   BPUT#ch,ASC(MID$(A$,A%,1))
440 NEXT A%
450 BPUT#ch,13
460 ENDPROC
```

Sound FX

Keith Irving

This Spectrum routine produces laser, siren and zap sounds in machine code without using the *Rom*. Once the code is located in the printer buffer, call it with *Randomize Usr 23300*.

The sound can be altered by using the following *Pokes*.

Pitch – *Poke 23296,0-255*
Length – *Poke 23297,0-255*
Rising tone – *Poke 23321,21*
Falling tone – *Poke 23321,20* (default).

```
10 REM POKE "SOUNDFX" CODE INTO PRINTER BUFFER
20 FOR N=23296 TO 23296+29
30 READ X: POKE N,X: NEXT N
40 DATA 0, 0, 0, 0, 243, 237, 91, 0, 91, 58, 72,  92,  15,  15,
        15, 238, 16, 211, 254, 67, 16, 254, 66,  16,  254,  20,
        32, 243, 251, 201
50 PAUSE 0: RANDOMIZE USR 23300: GO TO 50
```

Peek & Poke

with Kenn Garroch

Cursor speed of 64

J Seesahai of West Kensington, London, writes:

Q I am writing to ask if you can please let me know how I can change the cursor speed on my Commodore 64 computer.

A The cursor flash rate, keyboard repeat rate, and internal clock are all controlled from the CIAI chip timer A at locations 56324/5. To change the speed at which the cursor blinks, and the keyboard repeats, Poke ■ new value into 56325. Low values make things go faster, high values slow things down. The normal value is around 50–60. If you put a low value in, Basic programs will run quite a lot slower, a high value (255) speeds them up a little. The reason for the change in the speed at which programs run is due to the fact that the timer starts an interrupt routine which updates the clock, checks the cursor blink, and reads the keyboard. If these routines occur too often, processor time for Basic programs is used almost totally by the interrupt routine, making the program run very slowly.

Epson printers

M McCraw of Salisbury, Wilts, writes:

Q Would you please tell me if there is any interface and cable with which I can connect a C64 to an Epson LX80 printer? If there is, where might it be purchased? At the moment, I use the printer connected to an expanded Electron and do not really want to have to buy a separate printer for the 64.

A There are quite a few parallel/Centronics interfaces available for the Commodore 64. You might like to try the Final cartridge and centronics printer cable from H&P Computers, 9 Hornbeam Walk, Witham, Essex. 0376 511471. When ordering things by mail order, it helps if you can do it via credit card since this is both quicker, and gives you some protection if the goods fail to appear

Those crazy 1541's

P Becket of Bury, Lancs, writes:

Q After my 1541 has been on for roughly 45 minutes, it behaves very oddly. During a session with 'Portal', the drive began spinning (without the red light) and just kept on spinning. Also at such times, it fails to find any directory, it won't save anything, and sometimes goes into a routine that sbunds like formatting. I have to end this by whipping the disc out and switching the machine off. The things is, after a rest, all is back to normal! It loads, finds, saves, and everything seems fine. Please help before I go crazy!

A One of the things that can cause the problems you are having is placing the 1541 too close to the monitor/TV. The magnetic fields interfere with the operation of the drive and cause all sorts of strange happenings. In your case however, the drive appears to be overheating although this is quite unusual. Make sure that the surface you place your drive on allows air to freely circulate beneath the drive and try not to place things on to the case since this can cause problems as well. Check the cable connections to the drive to see if they are loose. The best thing to do is waggle them around and see what happens. If the trouble persists, there may be something more drastically wrong and you will have to get it looked at professionally. This should not cost more than £30 or so, depending on the fault.

From QL to ST

D M Brewood, of Dorking, writes:

Q Could you please resolve an argument that has recently arisen. The problem concerns the 68000 processor used in both the Sinclair QL and the Atari 520 STFM.

I own both the above machines and have many Super-Basic programs running on the QL that I would like to run on the ST. As both machines use the same processor, would it be possible to copy the QL Rom, via the RS232 ports, onto the ST and would this allow the ST to run QL programs?

The other point of view is that an assembler listing of the QL Rom would need to be obtained and then implemented on the ST, with modifications to allow discs etc to be used.

A The QL and the ST are similar in only one respect – they use nearly the same microprocessor. The ST uses the 68000 and the QL the 68008, the difference between them being that the 68008 has only an 8 bit data bus and 20 bit address bus, whereas the 68000 has a 16 bit data bus and ■ 24 bit address bus. As far as the rest of the machine is concerned, the differences are quite major.

To transfer the QL operating system onto the ST, all of the I/O routines would need to be altered since the discs, screen, keyboard, RS232, and printer ports are handled differently. The memory layout is quite radically different. The ST's I/O is located right at the top of the memory map where the QL software would nto be able to reach. On the whole, it would probably not be worth the trouble of fitting the QL operating system into the ST. What may be possible is to take the Super-Basic code and transfer it so that it will run under the ST operating system. To do this, however you would need to know a great deal about the way in which the language operates as far as memory storage and I/O are concerned. Not something to try without some help from the authors.

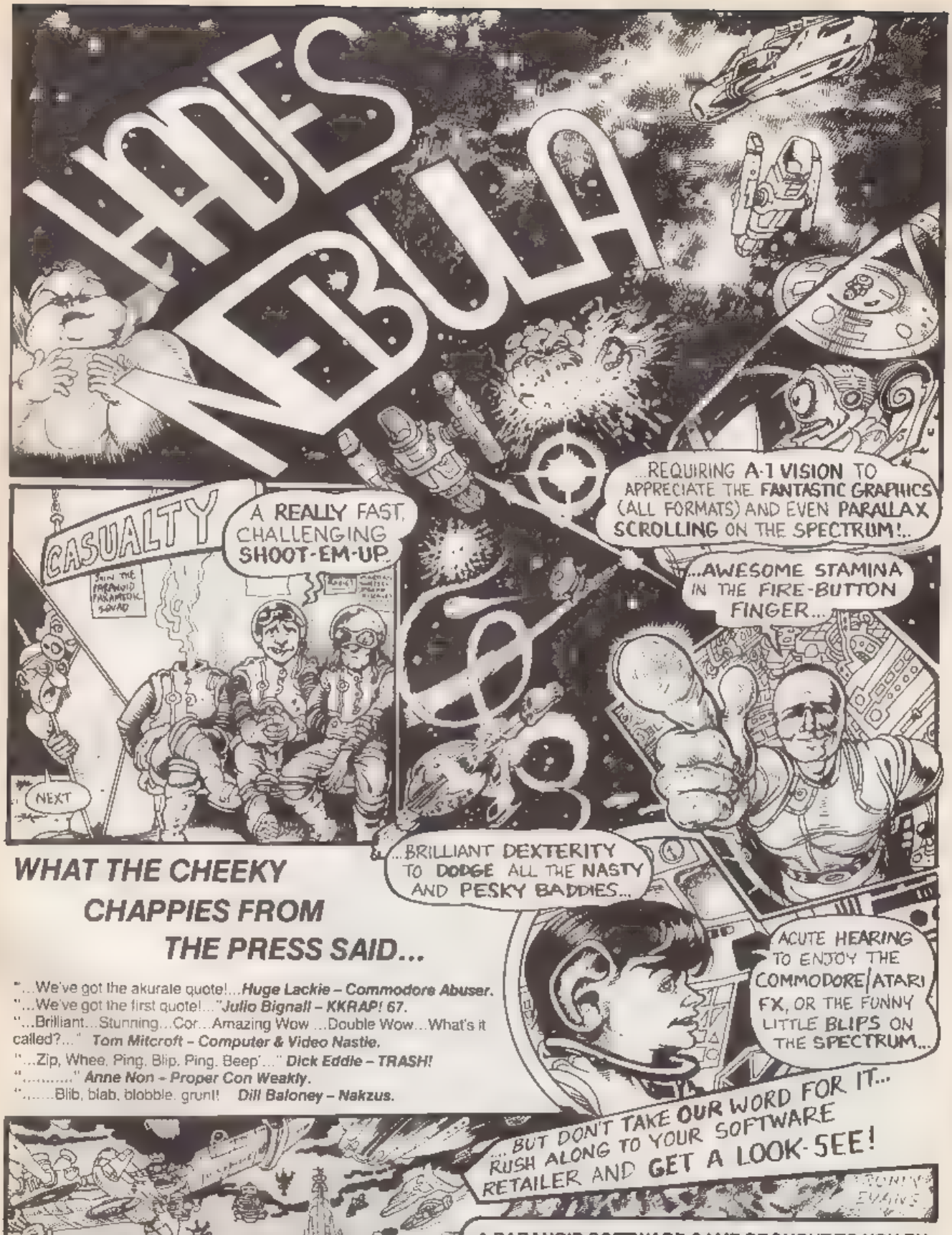
Local Apricots

S Bateman of Slough, Berks, writes:

Q I have recently ■ become an owner of an X1-FD Apricot and was wondering if you know the address of a local Apricot user group, preferably in the Berkshire area.

A Try contacting Mike Mudge, Square Acre, Stourbridge Road, Penn, Wolverhampton WV4 5NF. Tel: 0902 892141. He will be able to supply details of user groups in general.

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek* it to Kenn Garroch and every week he will *Poke* back as many answers as he can. The address is *Peek & Poke, PCW,* 12-13 Little Newport Street, London WC2H 7PP.



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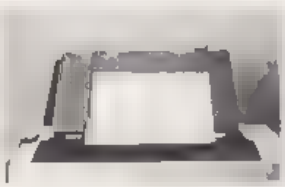

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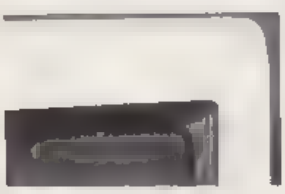

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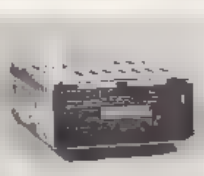

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One for the Digitiser

Haba's previous digitiser offering for the ST featured a high resolution digitising ability but suffered because you had to pause the incoming signal. The Realtizer Video Digitizer features a lower resolution (320 × 200 pixels) screen but can grab frames from the source.

Inside the video-style case you are supplied with a cartridge for the Rom port, manual, software disc and screen filters. To get things going, the cartridge is inserted ■ the usual place, the file labelled *DQui.Prg* loaded and your image source connected to the phono input on the cartridge itself.

As the input signal is supposed to be composite video this called for, ■ our case when connecting the ST up to a video recorder, a BNC to phono lead. The problem is that this combination of plugs is hardly standard, so a little surgery was called for. Alas this didn't work but connecting the RF output up instead did.

Assuming that all systems are now operational you are presented with the following drop down menus – File, Options, Pic-Ops and Prn-Param.

The File menu facilitates the saving and loading of digitised screens in *Neochrome, Degas, Doodle, Art Director* or *Bit Image* (for use with *Fleet Street Publisher*) format. Unfortunately you cannot save a screen just as a block of screen memory, so that when reloaded directly back by your own programs it appears in shades of grey.

Using *Bit-Image*, for instance, results ■ a horrible mess. The best way round this appeared to be saving files in *Art Director* format, setting the colours (or shades of grey) required from within your own program and then loading the file into screen memory. Completing the File menu are options allowing you to load or save false colours from or to disc.

Moving onto the main menu, Options is where most of the important functions are housed. Top of the list ■ Digi-Calib which automatically sets up the Realtizer for optimum brightness and contrast. Next is the function to actually grab a frame of the incoming signal and digitise ■, followed by the automatic digitising option.

Using this you can get a digitised image from about twice per second to once every two seconds, depending on the amount of grey levels that you are using. Use fewer and you get faster digitising but cruder images. The brightness and contrast settings can be altered at this point but ■ is rather inconvenient, in that the images are changing constantly.

The Lookup table allows you to assign different colours to the greys used initially giving false colour pictures of the subject. Unfortunately this part of the program ■ poorly implemented in that you are not informed of the Red-Green-Blue values of the colours selected, nor can you reset the colours back to their original grey levels, except by guesswork on the colour chart or rebooting the program.

The next thing to consider is how many levels of grey you want the image digitised ■. For just looking at a video source choose two, as it's the fastest option, and for actual digitising the 16 option is the one to go for. A strange thing here, though, is that although the image ■ being digitised in 16 shades of grey, the ST can only have eight in its entire palette so each shade is used twice. Re-assign the colour on one of the pairs, though, and you'll appreciate that it is actually doing the job in 16 levels.

The last two options on the Options menu include using ■ Fast option, if you have a 1040ST or higher, and printing out the image digitised according to the parameters set up in Prn-Param.

The other drop down menu worthy of note, Pic-Ops allows you to play various art package style tricks with the image including inverting, producing a mirror image, and zoom and dezoom for chunky close ups.

That basically is that. Except to mention that if your video source is a camera then by judicious use of the colour filters you can attempt to produce a colour image from the black and white source.

The Realtizer Video Digitizer works quickly and effectively, the images produced from the humblest of equipment (ie, my video recorder) are fair and it is compatible with ■ number of art packages. Not stunning or of extremely high quality as the manual likes to claim, but you should certainly consider it if digitised images are what you're after.

Consider this also: the Commodore 64 digitiser that this is substantially based on costs £80.

Duncan Evans

> *"Using the digitiser, you can get a digitised image from about twice per second to once every two seconds, depending on the amount of grey levels that you are using. Use fewer levels and you get faster digitising but cruder images"*

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This image was digitised using 16 levels of grey

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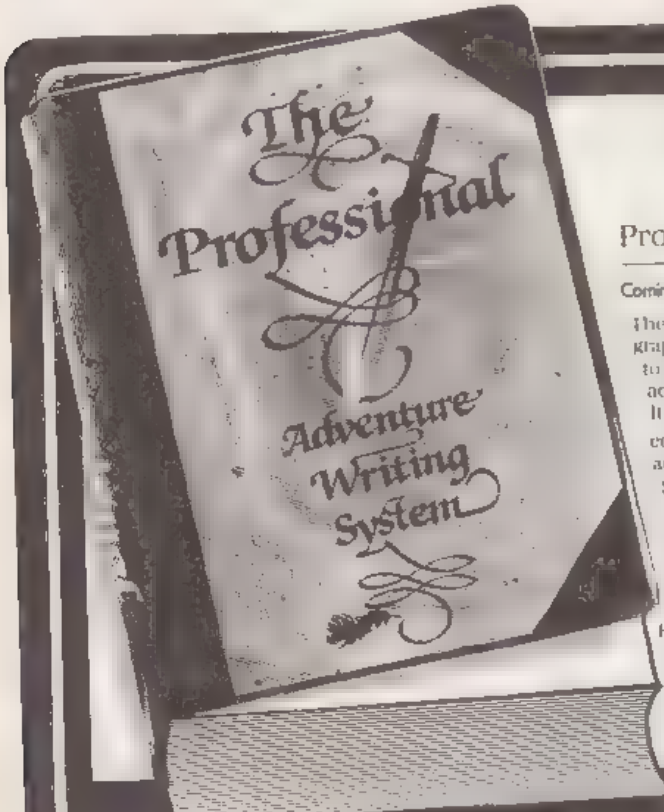

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Wait 'til the midnight hour

David Wallin returns with new ways to reduce your phone bill, and answers to readers' queries

This week it is back to my mailbag I've news from the Adventurers' Club, a new Mug, an answer to Mike Leek's Cirkit problem and a couple of other items.

Firstly, the Adventurers' Club has some news about Hendon Fido-Net bulletin board, on which it runs a large section Firstly, the board has had a second telephone line installed. It can now be accessed (24 hours a day) on 01-200 7577 (the original number) and also 01-200 8281. Both lines are V21 and V23 (300/300 and 1200/75) with V22 (1200/1200) on its way.

With two lines, the board becomes multi-user and so multi-user facilities are being added. The first is a user-to-user chat with the possibility of online Mugs, based on famous adventures, in the future.

On the subject of on-line games, Hendon Fido-Net has currently two on-line adventures with a third to follow. These aren't the crude, simple sysop written adventures found on most boards, but Infocom games. The first adventure installed, and possibly the the most well known adventure there is, was *Hitchhiker's Guide to the Galaxy*, followed by the slightly less well known, but still excellent *Sorcerer*. The success of these is to be followed by the risque *Leather Goddesses of Phobos*.

These adventures can be played while on-line. Also you will be able to play on any computer. From a ZX80 (even a Z88) to an Amiga to a Compaq 386. These adventures are definitely worth playing – Infocom is generally reckoned to write the best adventures in the world.

While adventures are still warm in your heart, I've got news of a new Mug, based in Surrey. The game, which is designed to combine the good bits of all Mugs, is called *Mirrorworld*. Unfortunately, I have never been able to get on as the line has been too noisy, though other people have had no problem. The number is 0883-844044 at 1200/75 8N1. I should be doing a full report on *Mirrorworld* in the near future.

One thing I would like to point out to adventure players is the cost of Mugs. A friend of mine racked up a £2000 phone bill in one year. This was through playing a popular Mug in London for hours each day, until 4am on many occasions. Having learnt his lesson his advice to keep a careful eye on the amount the phone is used is sound I agree as I once racked up £15 in one day on the same Mug One solution, and this column has looked at many ways to cut down the cost of communications is to have a midnight line installed

A midnight line is an addition to your current phone line and basically it allows you to make free inland calls from midnight to six in the morning. The system works by disconnecting your meter from your line during these hours.

The line costs £165 to have set up and £130 a quarter to use (the first quarter is not free, it costs £295). You must agree to keep the line for 12 months minimum, costing a total of £685 a year (less than the £2000 mentioned above, though) Midnight line is not cheap, yet it could result in a saving, provided that you are prepared to make all your calls from midnight to six in the morning (ie, you work nights or have strange social habits)

Information about midnight line can be found in the Information Centre (go through the Northwest door) in *Shades* on MicroNet, where Richard the Wizard keeps it up to date.

Now on to a reply to Mr M Leek's Cirkit problem This reply comes from Mr P Ravenscroft of Bath. Mr Leek wanted to know a couple of things about the Cirkit interface for the Amstrad and whether it is a 'standard' interface.

According to Mr Ravenscroft, the interface is nonstandard and thus will not operate with most public domain software without a lot of hassle.

There is a solution – CPL2. CPL2 is a piece of communications software specifically written for the Cirkit Amstrad interface by Cirkit. It covers Viewdata and Ascii operation with downloading available in either Ascii or XModem protocol. I don't know what features the software has but it costs only £14.95 so whatever features it has, it is good value. It comes on tape in unprotected binary format (that means you can copy it to disc without fancy copier programs – provided you do not pirate it for a third party) and is available from Cirkit Distribution, Park Lane, Broxbourne, Herts.

Lastly on CPL2, Mr Ravenscroft says that it comes with a very clear manual and can handle everything that the hardware can. I hope this is of help to Mr Leek and others and my thanks go to Mr Ravenscroft for sending his reply.

Now, Mr Ravenscroft himself has a question. He wants to put some programs he's written into the public domain but can't afford hours on the phone uploading them. Unfortunately I do not know of any boards in his area he can contact (1200/1200), but if there are any his address is below and we would both be grateful if any Bath sysops could contact him.

Failing this there are two things I would try. I would get in touch with the CP/M user group and also the UK PD library. One or both should be able to help. They should take a disc or tape and distribute the software on to boards for you. This reduces the cost to a disc and postage – perhaps £7 which you may find they return to you.

It is very nice to find someone prepared to put all the software they have written onto the PD as they feel 'obliged to' in thanks for the programs they have downloaded – this is how the PD library grows.

Mr Ravenscroft lives at 23 Arlington Road, Oldfield Park, Bath BA2 3PG. If any sysops of boards in his area want his telephone number then get in touch with me via Telecom Gold (72:MAG30190), Prestel (819991214), Prometheus (01-300 7177 *8#) or Musictel Plus (0843-590000 section C) and I shall give it to you.

The CP/M User Group's address is C/O Ms Diana Fordred, 72 Mill Road, Hawley, Dartford, Kent. The PD library can be contacted on 0342-315636, 300/300, 1200/75 and 1200/1200.

Their address(es) and other information should be available from this board. There are other Amstrad (CP/M and AmsDos) specific BBs around the country who would welcome the software.

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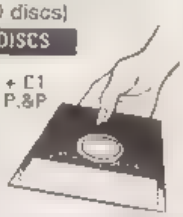

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See Commodore 64 listing for comment.

Program *Auf Wiedersehen Monty* **Type** Arcade **Price** £9.99 (tape), £14.99 (disc) **Supplier** Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS.

Mole's last adventures as he hops, leaps and generally weebles his way across Europe.

Program *Bonzo Doo Dah* **Type** Utility **Price** £11.50 (disc) **Supplier** Nemesis, 10 Carlow Road, Ringstead, Kettering, Northants NN14 4DW.

Program *Bonzo Super Meddler* **Type** Utility **Price** £11.00 (disc) **Supplier** Nemesis, 10 Carlow Road, Ringstead, Kettering, Northants NN14 4DW.

Program *Gauntlet – The Deeper Dungeons* **Type** Arcade **Price** £4.99 **Supplier** US Gold, Units 2/3 Holford Way, Holford, Birmingham B6 7AX.

Program *BMX Simulator* **Type** Arcade **Price** £1.99 **Supplier** Code Masters, 1 Beaumont Business Centre, Beaumont Close, Banbury, Oxon OX16 7RT.

Another racing game offering a true two player option from Codemasters. Did very well on other formats – and the CPC version plays just as well.

Program *Microvalue* **Type** Arcade Compilation **Price** £3.99 **Supplier** Tynesoft, Addison Industrial Estate, Blaydon upon Tyne, Tyne & Wear, NE21 4TE.

Amstrad PCW

Program *Moonmist* **Type** Text Adventure **Price** £24.99 **Supplier** Activision, Pond Street, London NW3.

Usual Infocom standard of presentation and content in this adventure set in a haunted West country mansion. Recommended for adventure beginners – but hardened types may find the problems a little too easy.

Atari ST

Program *Shanghai* **Type** Strategy **Price** £24.95 **Supplier** Activision, Pond Street, London NW3.

Program *Digi-Drum* **Type** Application **Price** £24.95 **Supplier** Microdeal, Box 68, St Austell, Cornwall PL25 4YB.

No extra hardware required to produce some great drum sounds with this package – but it has one whole bunch of flaws.

Only two channel sound (therefore only two sounds at once), tempo only measured in arbitrary units (not the standard beats per minute) and worst of all, the system can't be synchronised with any external systems (essentially ruling it out for use in any home recording set up). Naughty.

Program *Digi Drum Samples* **Type** Application **Price** £14.95 **Supplier** Microdeal, Box 68, St Austell, Cornwall PL25 4YB.

Extra samples (41 to be precise) for loading into the main *Digi-Drum* module.

Pick of the week

Take away Chinese

Program *Shanghai* **Type** Strategy **Micro** Amiga (ST) **Price** £24.95 **Supplier** Activision, Pond Street, London NW3.

It has been said, here and there by the odd commentator, that the enjoyment of any game is considerably enhanced by its graphics.

Now, Mr Playability here, yours truly, has from time to time entered into strong intellectual discussion with types putting forward such a case.

But from the moment *Shanghai* on the Amiga was booted up, I was eating my words faster than a ministerial coverup.

Shanghai, you might remember, is a sort of three dimensional patience played with Mah-jongg tiles, and was released on the 64 some months ago. Even then, the potential of the game was obvious, but it never sparked the imagination – the display of low res white on red was, quite frankly, dull. You certainly can't say that of the Amiga version.

Quite simply, artists Gene Smith and Glyn Anderson have produced a display that genuinely projects the illusion that what you are seeing on the monitor is real.

The tiles are beautifully designed and delicate shading makes the stacks of tiles stand out from the screen in a way both pleasing to the eye and effective when you are playing the game against the clock – for *Shanghai*, although a variation of that leisurely game patience (and pairs come to think of it), has its own variations that will get your pulse racing just as fast as the most frantic shooter. The game is played by matching pairs of tiles, removing them (by double clicking) – thus, hopefully, uncovering new ones. However, only tiles at the end certain tiles at the ends of 'The Dragon' (the stack of 144 tiles) are eligible for matching.

The 'deal' is random each time around, and it can be played at your convenience, with a little help from the computer when you run out of ideas. Alternatively, you can play it tough.

Tournament play is fun – you play out a fixed stack against the clock and see how many tiles you can remove in a certain period of time. Then a friend can try to do the same deal, and attempt to beat your score. This is bad enough, but when you get down to Challenge play, the adrenaline really starts to flow.

This has you alternating moves with an opponent against the clock – so you get a fixed time to make a move (10, 20, 30 or 60 seconds, depending on how cocky you feel), then the other player gets the same time to find another – or forfeit a point.

Point is, there were similar facilities on the 64, but because the graphics (although worthy) were dull and unimaginative – so was the game. Not so on the Amiga – and to a less extent, the ST.

If you can catch this running on said machine, sell grandmothers to do so, but have both hands prepared to catch the jaw as it falls open.

Atari XL/XE

Program *Microvalue* **Type** Arcade Compilation **Price** £3.99 **Supplier** Tynesoft, Addison Industrial Estate, Blaydon upon Tyne, Tyne & Wear, NE21 4TE.

As with all the new Microvalue compilations, you get four games for just under four quid. *Jet Set Willy* is included on the Atari release.

BBC B

Program *Sphera of Destiny* **Type** Arcade **Price** £7.95 (tape), £11.95 (disc) **Supplier** Audiogenic, PO Box 88, Reading, Berkshire.

Fast *Trailblazer* clone written by author of *Psycastria* (itself slightly similar to *Uridium*) Gary Partis.

Still, there's 64 levels of it, and nothing similar available on the BBC. I'd go for it if I were you.

Program *Starquake* **Type** Arcade **Price** £9.95 (tape), £11.95 (disc) **Supplier** Bubble Bus, 87 High Street, Tonbridge, Kent TN9 1RX.

Superior arcade adventure converted to the BBC by Kenton Price, who happens to go to the kind of public school where you have to wear 17th Century attire, lick the floor clean and get beaten seventeen times a day. Most of the old boys are now members of the Cabinet, I suppose.

Program *Modem Master* **Type** Utility **Price** £11.95 **Supplier** BBC Enterprises, 35 Marylebone High Street, London W1M 4AA.

Terminal package for the BBC that should get you hooked up without too much trouble.

C16/Plus 4

Program *Microvalue* **Type** Arcade Compilation **Price** £3.99 **Supplier** Tynesoft, Addison Industrial Estate, Blaydon upon Tyne, Tyne & Wear NE21 4TE.

Commodore 64

Program *Express Raider* **Type** Arcade **Price** £9.99 (tape), £14.95 (disc) **Supplier** US Gold, Units 2/3 Holford Way, Holford, Birmingham B6 7AX.

Coin-op conversion from Data-East original, with your good self holding up a steam train all set in the Wildest West. Try it out.

Program *Gauntlet – The Deeper Dungeons* **Type** Arcade **Price** £4.99 **Supplier** US Gold, Units 2/3 Holford Way, Holford, Birmingham B6 7AX.

Just when you thought it was safe to go back into the dungeons . . . no such luck, pal.

Program *Vampire* **Type** Arcade **Price** £1.99 **Supplier** Codemasters, 1 Beaumont Business Centre, Beaumont Close, Banbury, Oxon OX16 7RT.

Jumpy, jumpy lightweight run-of-the-mill budget stuff.

Program *Microvalue* **Type** Arcade Compilation **Price** £3.99 **Supplier** Tynesoft, Addison Industrial Estate, Blaydon upon Tyne, Tyne & Wear NE21 4TE.

Electron

Program *Microvalue* **Type** Arcade Compilation **Price** £3.99 **Supplier** Tynesoft, Addison Industrial Estate, Blaydon upon Tyne, Tyne & Wear NE21 4TE.

Program *Sphere of Destiny* **Type** Arcade **Price** £7.95 **Supplier** Audiogenic, PO Box 88, Reading, Berkshire.

See BBC listing for comment.

PC and Compatibles

Program *Imprint* **Type** Utility **Price** £9.95 **Supplier** The Electric Studio, 13 The Business Centre, Avenue One, Letchworth, Herts SG6 2HB.

Printer Utility Program written specifically for the PC 1512.

Spectrum

Program *Bismarck* **Type** Arcade Strategy **Price** £9.95 **Supplier** PSS, Stoney Stanton Road, Coventry CV6 5DG.

Latest in line of the well received PSS wargames series. This one pits the might of the British Navy against the pride of the German Fleet, the Bismarck, as it attempts to break out from the Baltic and escape into the South Atlantic.

Program *Express Raider* **Type** Arcade **Price** £8.99 **Supplier** US Gold, Units 2/3 Holford Way, Holford, Birmingham B6 7AX.

See Commodore 64 listing for comment.

Program *Gauntlet – The Deeper Dungeons* **Type** Arcade **Price** £4.99 **Supplier** US Gold, Units 2/3 Holford Way, Holford, Birmingham B6 7AX.

See Commodore 64 listing for comment.

Program *Ghosthunters* **Type** Arcade **Price** £1.99 **Supplier** Codemasters, 1 Beaumont Business Centre, Beaumont Close, Banbury, Oxon OX16 7RT.

Platforms and ladders action with a difference – with the fire button depressed you control an on-screen gun sight and can blow away the assorted spooks that drain your energy as you bop around a haunted house.

Two player option allows a friend to control it for you. Not bad.

Program *Star Runner* **Type** Arcade **Price** £1.99 **Supplier** Codemasters, 1 Beaumont Business Centre, Beaumont Close, Banbury, Oxon OX16 7RT.

Quite topical really, with the London Marathon coming up – you play the Earth's competitor in the Intergalactic 2087 Olympics version of the event. Simple controls played out in nice perspective 3-D – sounds a lot less tiring than the real thing too.

Program *Super Robin Hood* **Type** Arcade **Price** £1.99 **Supplier** Codemasters, 1 Beaumont Business Centre, Beaumont Close, Banbury, Oxon OX16 7RT.

Feeling heroic? How about rescuing a fair maiden then? Whaddya mean there's something good on the telly?

Program *Indoor Sports* **Type** Arcade **Price** £8.95 **Supplier** Advance Software, 17 Stape Tye, Harlow, Essex CM18 7LX.

Four very classy implementations (ten pin bowling, darts, table tennis, air hockey) all on the one tape. Great value, great stuff.

Program *Microvalue* **Type** Arcade Compilation **Price** £3.99 **Supplier** Tynesoft, Addison Industrial Estate, Blaydon upon Tyne, Tyne & Wear NE21 4TE.

Includes Ram Jam's yesteryear hit, *Panzadrome*, which alone makes this package well worth consideration.

Program *Learn Chess* **Type** Obvious **Price** £6.95 (mail order) **Supplier** Coxsoft, 31 Fullwell Avenue, Barkingside, Ilford, Essex IG6 2HB.

Spectrum Plus 2/128K

Program *Artist II – Special Version* **Type** Application **Price** £17.95 **Supplier** Softek, 36/38 Southampton Street, Covent Garden, London WC2E 7HE.

All the features of the existing *Artist II*, themselves very impressive, plus a separate program, *Page Maker*, that allows you to hold and edit eight screens of graphics and text in memory at the same time – roughly equivalent to a side of A4. Must be a contender if you are looking for an art package for your machine.

Farewell to the cassettes

I was pleasantly surprised to read in the 19th February issue of *Popular Computing Weekly* that Amstrad plans to launch a new version of the Spectrum with a built in disc drive. Not that I'd contemplate rushing out and buying one, not being into things Spectrumy (unless this meant Infocom Adventures became available) but that I believe, I sincerely hope, that this is the beginning of the end for the Cassette-Based Micro.

Cassettes. Yeuck! I remember on my old Tangerine system when I finally built and fitted the disc board how pleased I was that the machine was so much more powerful than it had been – after a while I was disconnecting the cassette leads, knowing I would never want to use them again.

And when I retired the Tangerine in favour of my Mandarin 68809 Flex system, how I felt I had so much more power with the machine having a standard operating system instead of a hastily cobbled together Dos of the old Tangerine. It was also about that time when I said to myself I would never, ever, even *consider* a cassette based system.

I know this bit might get a few people out there baying for my blood, but I don't care. It's about time the micro-using people of this country got in line with the more enlightened micro users of the States, where now for a long time the disc based system has been the norm, as opposed to the disgustingly backwards condition here, where they have been the exception. Disc drives *aren't* really all that expensive, and nor (maybe with the exception of the 3" ones) are the discs.

Kill the cassettes! Terminate the tapes! Cassette based micros nowadays are positively prehistoric, and it is really about time they were put out of their misery. No manufacturer in his right state of mind should even contemplate installing a cassette interface – luckily with the new breed of 16-bitters like the ST and Amiga, a cassette interface would have been totally useless to anyone but a masochist.

Let's face the hard and cruel facts. Disc dased systems are now coming to the prices which a few years ago would have only got you a primitive cassette based clunker. Who in a legal state of mind would prefer to wait several minutes for something to load as opposed to less than one? Also consider that with the speed of discs programs can be bigger, and much more complex, so the games freak can have bigger and better games than ever before, and the serious user can manipulate vast amounts of data which would be impossible on a mere cassette. Believe me, once you get accustomed to the speed and flexibility of using disc drives, you wonder how crazy you must have been not to have gone disc sooner.

That brings me back to the subject, the Spectrum 128 +3, with its (hopefully) built in standard disc drive. Round of applause please for Alan Sugar, who has come round to, in one year of owning the Spectrum, what ol' Clive Sinclair never even dreamed of, being too preoccupied with those naff Microdrives (Pause while this chronicler stops laughing . . .)

To Alan Sugar I would like to say this: Be bold! Scrap the 128K +2 altogether, bring out a cheap add-on disc system for people with 128K's and +2's, sell the +3 at the same price the +2 currently sells for, and then actively encourage the development and sale of disc only software so that the new standard quickly catches on and there isn't a repeat of the 'Will there be any software for it' which haunted the original 128K machine. Go for it!

The Time Has Come . . . Hopefully by next year the idea of micro-computer with a long lead attaching it to a cassette recorder, or with a tape deck built in, will be as antique as the punched card, or ferrite core, to which I can only say, so long . . . good riddance, and no thanks for all the wasted time.

Anthony Shepherd

NEXT WEEK

Five years on

Next week, *Popular* is celebrating a special anniversary – our fifth birthday!

Yes, we'll be five years old (seems like decades, doesn't it?). So, in the best tradition of anniversaries, we'll be featuring some of the highlights of the issues down the years.

We're also going to celebrate by giving the magazine a new look – but don't worry, you'll recognise us on the newsstands.

So make sure you get a copy of an unusually festive issue of *Popular* (banners, crackers and silly string not included).

Laws of Computing

John Mawhood clears a path through the thorny question of copyright: piracy versus copying; copying versus backing-up . . . what the legal position really is.

Programming in C

Kenn Garroch begins a comprehensive series of articles on beginning, using and writing in C.

TECHNOLOGY SO ADVANCED ...

MEMORY
* 512Kbytes RAM (520ST-M, FM)
* 1024Kbytes RAM (1040ST-F)
* 192Kbytes ROM
* 128Kbytes external plug-in ROM option

ARCHITECTURE
* Motorola 68000 Central Processing Unit (CPU) with a clock speed of 8MHz
* 16-bit internal data bus
* 32-bit internal data bus
* 24-bit address bus
* 8-32-bit data & address registers
* 7 levels of interrupts
* 56 instructions
* 14 addressing modes
* 5 data types
* DMA (Direct Memory Access)
* real time clock as standard

GRAPHICS
* full bit-mapped display
* palette of 512 colours

Using Atari Monitors (on 520 & 1040):
* 640x400 high resolution - monochrome
* 640x200 medium resolution - 4 colours
* 320x200 low resolution - 16 colours
* 80 column text display (40 col low res)

Using Domestic TV (on 520):
* 640x200 medium resolution - 4 colours
* 320x200 low resolution - 16 colours
* 40 column x 25 line text display

SOUND AND MUSIC
* 3 programmable sound channels
* frequency programmable 30Hz - 125KHz
* programmable volume
* wave & dynamic envelope shaping
* programmable attack, decay, sustain, release
* Musical Instrument Digital Interface (MIDI)
* MIDI allows connection of synthesisers etc.

MOUSE
* high precision
* 2 button control
* free with 520ST-FM/1040ST-F
* non slip ball motion sensor
* removable ball for easy cleaning

STANDARD SOFTWARE
* GEM desktop + TOS operating system
* ST BASIC interpreter language

INPUT/OUTPUT

* MIDI out	(5 pin DIN) 31.25K baud
* MIDI in	(5 pin DIN) 31.25K baud
* audio out	1.0V DC peak to peak, 10K ohm
* audio in	1.0V DC peak to peak, 10K ohm
* RGB monitor	1.0V DC, 75 ohm
* mono monitor	1.0V DC, 75 ohm
* mono horizontal scan rate	35.7KHz
* mono vertical scan rate	71.6KHz
* sync	5V DC (active low) 3.3K ohm
* modem/serial	RS232C, 50 to 19,200 baud
* floppy disk	250 Kbits/s
* hard disk	11.3 Mbits/s
* mouse	standard Atari connector
* joystick	standard Atari connector
* cartridge port	128K capacity
* RF output (520ST-FM)	for TV use

OPERATING SYSTEM
* TOS with GEM environment in ROM
* hierarchical file structure with sub-directories and path names
* user interface via GEM, with self explanatory command functions
* multiple windows + icons
* window resizing, repositioning and erasing
* drop-down menus (selected by mouse)
* GEM virtual device interface

COMMUNICATIONS
* RS-232C serial modem port
* 8-bit parallel printer port
* MIDI port (also for networking use)
* VT52 terminal emulation

KEYBOARD
* standard QWERTY typewriter format
* 95 full stroke keys
* 10 function keys
* 18 key numeric keypad + cursor keys
* variable auto-repeat & key click response
* keyboard processor includes CPU overhead

... IT'S AFFORDABLE

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Finally, there's a personal computer that not only solves problems like other computers, but also solves the one problem that other computers have created. Affordability. Since Atari are pleased to present the ST range of personal/business computers from Atari. The ST was designed utilising the most recent breakthroughs in semiconductor technology, producing a personal computer that performs tasks with fewer parts. Which means it costs less to make. And less to buy. The latest ST computers now include built-in power supplies and built in disk drives. The TOS operating system and GEM window environment are now on ROM chips which are already installed in the ST keyboard. This enables automatic instant booting when you switch on. Silica Shop are pleased to offer the complete Atari ST range. Our mail order department is situated in Sidcup and we have 4 retail outlets at Sidcup, Orpington, Lion House (Tottenham Court Rd) and Selfridges (Oxford Street). We have eight years experience of Atari products, longer than any other UK company, and are well established as the UK's No.1 Atari specialist. With a group turnover of over £5 million and in excess of 70 staff, we provide unbeatable service and support. We provide several facilities which you will find invaluable during your Atari computing life and most of these facilities are available **ONLY FROM SILICA**. We suggest that you read through what we have to offer, before you decide where to purchase your Atari ST.

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520ST-M

The affordability of Atari computers is reflected in the price of the 520ST-M keyboard, which is a mere £258 (inc VAT). This version of the ST comes with 512K RAM, as well as a modulator and lead for direct connection to any domestic TV. The price does not include a mouse. In addition, when you buy your 520ST-M from Silica, you will also receive the FREE Silica ST Starter Kit. During 1987, many software houses will be producing games software on ROM cartridges, which will plug directly into the cartridge slot on the 520ST-M keyboard, giving instant loading without the expense of purchasing a disk drive. With the enormous power of the ST, you can expect some excellent titles to be produced, making this the ultimate games machine! If your requirement is for a terminal, then the 520ST-M can turn this role too. Leads are available to connect the ST to a variety of monitors, and with the imminent introduction of terminal software on ROM cartridge, the ST provides a low price terminal for business use. If you wish to take advantage of the massive range of disk software available for the ST range, you will need to purchase a disk drive. Atari have two floppy disk drives available, a ½ Mbyte model (£149 and a 1Mbyte model £199. Full details of these drives, as well as the Atari hard disk are available on request. If required at a later date, the mouse may be purchased separately.

£259

520ST-FM

The 520ST-FM with 512K RAM and free mouse, represents a further breakthrough by Atari Corporation in the world of high power, low cost personal computing. This model is the latest addition to the ST family, and is not only powerful, but compact. It is priced at only £399 (inc VAT) a level which brings it within the reach of a whole new generation of computer enthusiasts. When purchased from us, it comes with the FREE Silica ST Starter Kit (see paragraph on the left). To make the 520ST-FM ready for use straight away, Atari have built into the keyboard a ½ megabyte disk drive for information storage and retrieval, allowing you easy access to the massive range of disk based software which is available for the ST. The new computer comes with all the correct cables and connections you will need to plug it straight into any standard domestic television set. You do not therefore have to purchase an Atari monitor, if you do require a monitor however, these are available with the 520ST in the following money saving packages:

520ST-FM Keyboard + Mono Monitor	*- £399 (inc VAT)*
520ST-FM Keyboard + High res mono monitor	*- £499 (inc VAT)*
520ST-FM Keyboard + Low res colour monitor	*- £599 (inc VAT)*
520ST-FM Keyboard + Med res colour monitor	*- £899 (inc VAT)*

Because the 520ST-FM has its own power transformer built into the keyboard, there are no messy external adaptors to clutter up your desk space. You are left with only one mains lead, serving both the disk drive and the computer. You couldn't ask for a more stylish and compact unit.

£399

1040ST-F

For the businessman and the more serious home user, Atari have their most powerful model, the 1040ST-F with 1024K RAM. This low cost powerhouse can be introduced into a business environment as a stand-alone system, or can support a mainframe computer as a terminal. The 1040ST-F not only features twice as much memory as the 520ST-FM, but also includes a more powerful built-in disk drive. The drive featured on the 1040ST-F is a one megabyte double sided model. The extra memory facility of the 1040ST-F makes it ideal for applications such as large databases or spreadsheets. Like the 520ST-FM, the 1040ST-F has a mains transformer built into the console to give a compact and stylish unit with only one mains lead. The 1040ST-F is also supplied from Silica Shop with a free software package and ST STARTER KIT. In the USA, the 1040ST-F has been sold with a TV modulator like the 520ST-FM, however for the UK market, Atari are manufacturing the 1040ST-F solely with business use in mind and it does not currently include an RF modulator, this means that you cannot use it with a domestic TV (Silica Shop do offer a modulator upgrade for only £49). The 1040ST-F keyboard costs only £599 (inc VAT) and, unless a modulator upgrade is fitted, will require an Atari or third party monitor. There are three Atari monitors available and the prices for the 1040 with these monitors are as follows:

1040ST-F Keyboard + Mono monitor	*- £899 (inc VAT)*
1040ST-F Keyboard + High res mono monitor	*- £999 (inc VAT)*
1040ST-F Keyboard + Low res colour monitor	*- £799 (inc VAT)*
1040ST-F Keyboard + Med res colour monitor	*- £999 (inc VAT)*

The 1040ST-F comes with a mouse controller and includes 1Mbyte of RAM. It has a 1Mbyte double sided disk drive and mains transformer, both built into the keyboard to give a compact and stylish unit, with only one mains lead.

£599

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